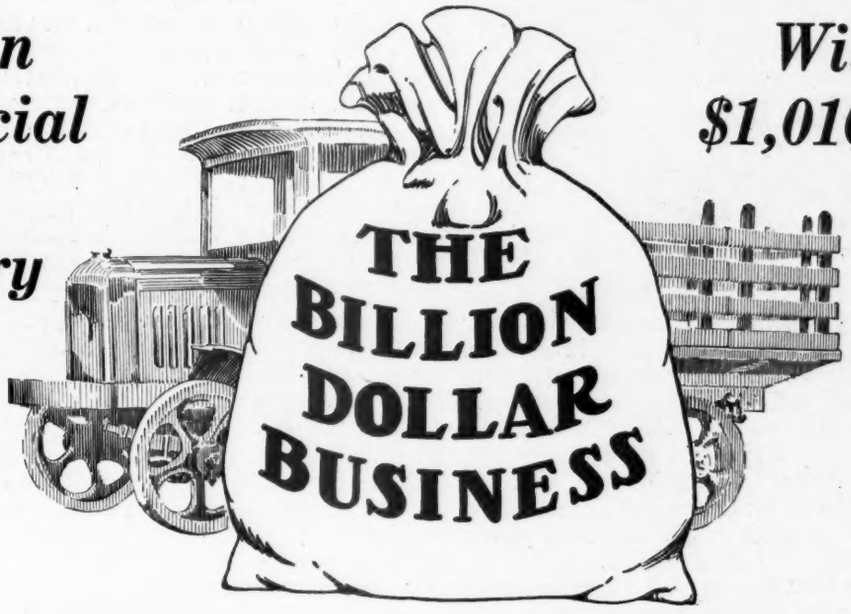
The Commercial Car Journal

VOLUME XXIII PHILADELPHIA, JUNE 15, 1922 NUMBER 4

A Billion Dollar Sales Field!

Sales in Commercial Car Industry Will Total $1,010,000,000 in 1922



By J. H. COLLINS, Manager Commercial Survey Department, CHILTON COMPANY

A NEW recruit has been added to America's giant industrial enterprises. Only the mind accustomed to the tremendous pace set by the automotive industry in the business world will be able fully to appreciate that in the short space of ten years the commercial car industry has grown from the experimental stage to the point where total sales exceed $1,000,000,000 annually.

Thirty years ago total expenses for the conduct of the entire government reached the billion dollar point for the first time since the establishment of the republic. The fact was given wide prominence at the time, public officials were pilloried for extravagance and "The Billion Dollar Congress" went down in history as the shining example of pork barrel politics.

Today an industry which had its real commercial conception twenty years ago after the national budget crossed the billion dollar mark has reached the point where total sales now exceed the entire cost of operating the government of the United States thirty years ago. With this fact in mind, it is easier to appreciate the potentialities in the development of so rich a sales field. When it is remembered in addition that the past two years have witnessed the worst business depression in a decade, it becomes evident that the commercial car business is just entering what might be termed its second cycle of commercial expansion.

Let us now consider briefly some of the facts bearing on the present status of the commercial car business and its probable future.

A Billion Dollar Market

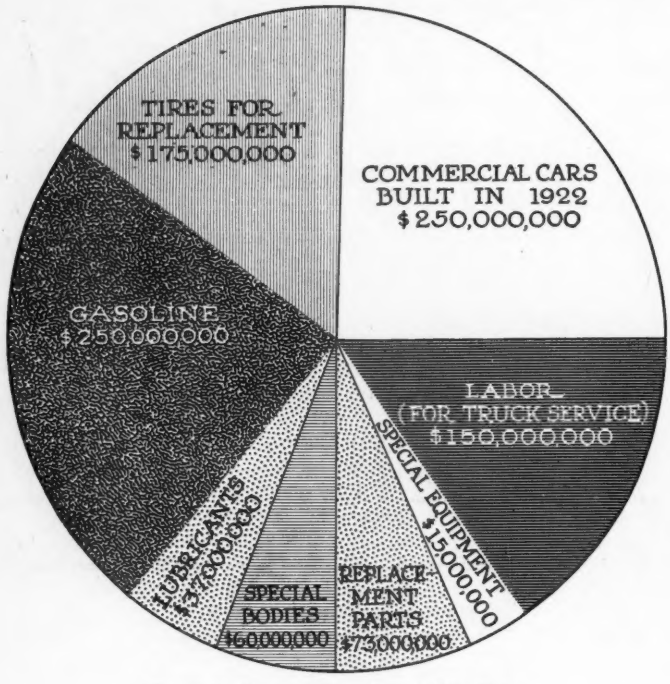
First it may be well to review certain evidence which points to the conclusion that the present business in the commercial car field exceeds $1,000,000,000 annually. Sales in this industry for 1922 logically divide themselves into five general heads as follows:

1. **Commercial cars built during 1922.**
2. **Operating supplies**
3. **Special truck equipment.**
4. **Replacement parts and supplies.**
5. **Service labor.**

The present rate of production suggests that approximately 250,000 commercial cars will be built during the present calendar year. The average f.o.b. value of these trucks will be about $1,000 each. The total value of the year's production of commercial cars will, therefore, be about $250,000,000, or nearly one-fourth of the total year's sales in the commercial car field.

A number of items need to be considered under the head of operating supplies. Chief among these items are gasoline, tires, and lubricants.

Careful records compiled from many sources show that the average commercial car consumes a trifle more than 1,000 gallons of gasoline per year. On this basis



Graphic Chart, Showing 1922 Sales

it is estimated that between 1,100,000,000 gallons and 1,200,000,000 gallons of gasoline will be used this year for the operation of all commercial cars in service. An average of twenty-two cents per gallon for this gasoline is ultra-conservative, but on this basis, the gasoline bill for the year will be about $250,000,000.

Tires constitute a very important item in the cost of truck operation. About 5,000,000 tires will be needed for the operation of all commercial cars in use this year. At an average price of $35 each, the year's tire bill will be approximately $175,000,000.

The consumption of lubricating oil in commercial cars varies greatly under different operating conditions. From all available evidence, however, it is believed that the consumption of lubricating oil per commercial car will be nearly seventy gallons per year. Hence, about 75,000,000 gallons of lubricating oil at 50 cents per gallon will bring the bill for commercial car lubrication to $37,000,000.

Under the heading of special truck equipment, we may list such items as special bodies, cranes, hoists, winches, cushion wheels, etc. Of course, mostly special bodies will be required for installation on commercial cars manufactured this year. Approximately 200,000 such bodies, at an average price of $300 apiece, will be required in 1922. Sales of cranes, hoists, winches, etc., will approximate $15,000,000. Therefore, total truck equipment sales will be about $75,000,000.

Replacement parts and replacement supplies have become a great factor in total annual sales since the registration of commercial cars has crossed the million mark. Such replacement parts consist principally of such items as brake lining, batteries, bearings, piston rings, pistons, radiators, springs, ignition apparatus, etc. Careful analysis of sales of each of the principal items show that total sales of such parts and supplies in 1922 will be $73,000,000. Of course, this does not include sales of parts and supplies for factory equipment, as these have been considered in connection with the total value of the truck output for the year.

The labor involved in the repair and maintenance of commercial cars in use appears upon investigation to approximate $140 per truck per year. Since there were 1,050,000 trucks in use at the beginning of the present year, service labor will reach a total of at least $150,000,000.

If we add all of the above items together it will be seen that the total sales in all branches of the commercial car industry will be well in excess of $1,000,000,000 for the current year. The figures given herein have been emphasized because they indicate that already the commercial car industry has taken its place as one of the really great industrial factors in America.

Estimated Total Sales in the Commercial Car Industry for 1922

Commercial Cars Built in 1922				$250,000,000
Tires for Replacement				175,000,000
Gasoline				250,000,000
Lubricating Oil				37,000,000
Special Bodies				60,000,000
Replacement Parts and Supplies				73,000,000
Brake Lining	$8,500,000	Springs	8,250,000	
Batteries	6,250,000	Ignition Apparatus	6,500,000	
Bearings	11,500,000	Other Parts and Supplies	15,000,000	
Piston Rings	3,700,000			
Pistons	6,500,000			
Radiators	6,800,000		$73,000,000	
Special Truck Equipment				15,000,000
Labor (Repairing and Overhauling)				150,000,000
Total				$1,010,000,000

Tremendous Growth in Truck Registrations

Let us now consider briefly another phase of the industry. The upward curve in registration totals for the past few years shows more graphically than words the tremendous expansion which has taken place in the use of commercial vehicles.

In 1913 there were 64,000 motor trucks registered. At the present time the registration of commercial cars exceeds 1,050,000. This represents an increase of 1540 per cent during a nine year period. In considering commercial expansion we are accustomed to think of the passenger automobile as typifying rapid growth. When we now consider that during the period from 1913 to 1922 registrations of passenger cars increased 715 per cent as compared with an increase of 1540 per cent in commercial cars, it will be seen that the rate of increase in the commercial car field has been more than twice that in the passenger car field, although, of course, the total numbers involved are not comparable.

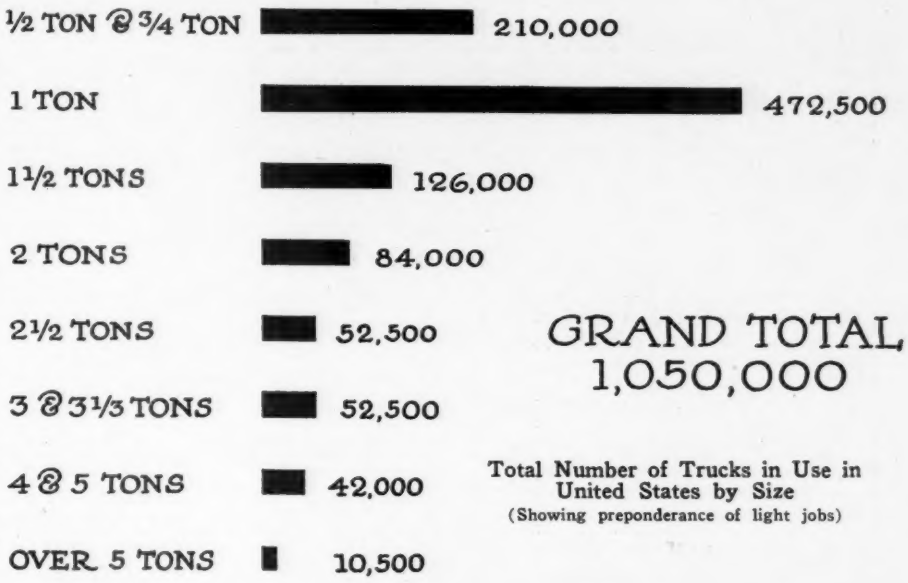
If we consider the matter more carefully we realize that the commercial car had hardly become a vital factor in industrial life prior to the entry of America into the World War in 1917. The greatest increase in the number of trucks in use has come about during the four year period since the end of 1917. Hence, if we compare the motor truck and passenger car business since 1917 we will be able to appreciate more fully the relatively greater expansion in the commercial car field. At the end of 1917 there were 4,805,331 passenger cars registered. At the beginning of 1922, 9,455,000 passenger cars were registered. During this period, therefore, the number of passenger cars in use increased 96 per cent. During the same period, commercial car registrations have grown from 289,000 at the end of 1917 to 1,050,000 at the beginning of the present year, and increase of 263 per cent.

These figures have a decided significance. They mean that during the past four years the number of commercial cars in use has increased nearly three times as fast as the number of passenger cars in use, in spite of the fact that the business depression during 1920 and 1921 had a more serious effect upon the truck business than upon the passenger car business, as the great majority of trucks today are used for strictly industrial purposes.

Growth in Commercial Car Output

We would naturally expect that the production of commercial cars would be comparable in a general way to increases in registration totals. Investigation shows that this is the case.

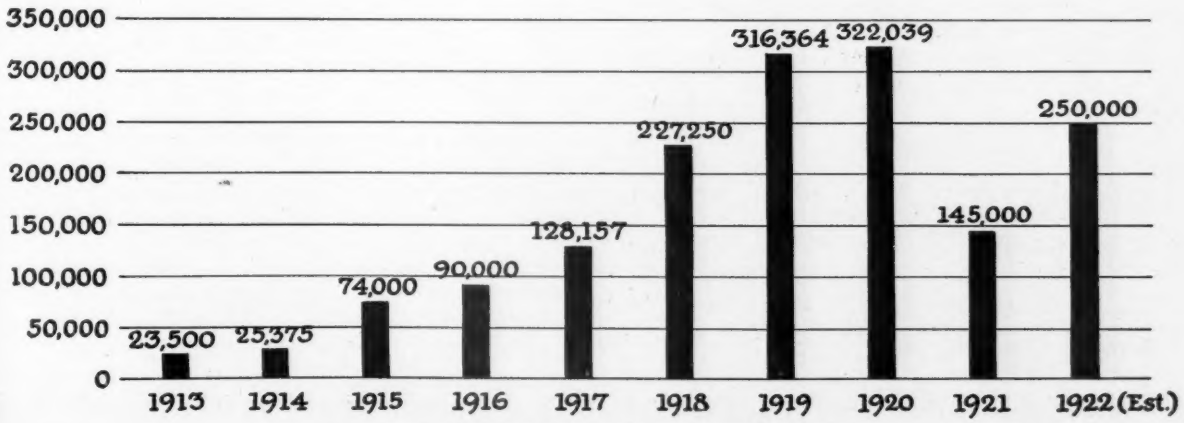
In 1913, 23,500 commercial cars constituted the entire year's output. Seven years later production had increased 1270 per cent, bringing the output for 1920 to 322,039 commercial cars. As might be expected, the general business depression which swept the country during the summer of 1920 and prevailed through 1921, forced production for the latter year down to about 150,000. The present resumption of normal business is again being reflected in the commercial car output which this year promises to reach a total of 250,000. It is interesting to note that the estimated output of 250,000 for the present year is 177 per cent more than were produced in 1916, the last year before our entry into the World War. There can be no question as to the commercial vitality of an industry that has shown an increase of 1270 per cent in production during a seven year period.



Total Number of Trucks in Use in United States by Size
(Showing preponderance of light jobs)

The Truck Dealer Organization

There is another phase of the commercial car industry which merits attention at this time. Reference is made to the distribution of truck dealers in different sections of the country.



Potential Market for 4,500,000 Commercial Cars

Statistics show that in 1919 there were 18,209 truck dealers of all classes in the United States. In 1920 this total had increased to 19,670. At the present time there are more than 22,800. During the past two years, therefore, the number of commercial car dealers has increased about 25 per cent. It is a significant fact that 88 per cent of the dealers who handle commercial cars also sell passenger cars, and only 12 per cent of all dealers in commercial cars specialize in this field. To offset this fact, however, it should be stated that the number of dealers handling commercial cars exclusively has increased from 900 in 1919 to 2,573 in 1922, suggesting that the commercial car business is proving attractive to an increasingly large number of dealers who desire to specialize in this field. A graphic chart, which shows the distribution of dealers according to states, indicates that the dealer organization has been started in most cases in the territory adjacent to the principal centers of truck production, and has radiated out slowly from these centers. Such a distribution of the dealer organization, of course, has not been in strict conformity with the potential market for trucks in different sections. For instance, many of the richest agricultural states, such as Kansas and Missouri, have comparatively few dealers in proportion to sales possibilities. One of the chief problems of the manufacturer at the present time seems to be in connection with the building up of a really representative dealer organization in those states where the ultimate possibilities for sales are best. This does not mean, necessarily, a great increase in the number of truck dealers. It simply means a better proportionment of territories, and a stronger representation in those states where sales possibilities are great and the present dealer organization is weak.

Potential Commercial Car Requirements in Industrial Field

	Number	Potential Truck Requirements
Manufacturers	289,770	539,000
Retail Grocers (Large)	172,847	260,000
Coal Dealers	31,000	240,000
General Stores	147,984	221,000
Lumber Dealers (Large)	18,000	90,000
Furniture Stores	37,563	75,000
Building Contractors	14,391	72,000
Dry Goods Stores	32,472	65,000
Plumbing Establishments	25,774	51,000
Department Stores	4,215	42,000
Building Supply Dealers	10,050	30,000
Ice Dealers (Large)	6,200	24,000
Other Industrial Enterprises, Including Railroad and Trolley Companies		791,000
Total		2,500,000

The Potential Market for Commercial Cars

An estimate of the potential market for commercial cars of necessity cannot be exact as it is manifestly impossible to foresee changing conditions in the future. On the basis of existing facts, however, it is possible to arrive at some general conclusions based on the assumption that ultimately the industrial field and the agricultural field will be properly motorized. Let us consider first the potentialities in the industrial field. There are now 289,770 manufacturing plants in the United States. When these are properly classified according to financial rating, and it is estimated that those rated at $1,000,000 or more will require an average of ten commercial cars each, those rated at $125,000 to $1,000,000 will need five commercial cars each, and the remainder will require one commercial car each, it is found that 539,000 trucks will be required for this business group.

There are 172,847 retail grocers who require commercial cars for delivery, and these will need 260,000 trucks, 31,000 coal dealers will ultimately need 240,000 commercial cars. If we classify in a similar manner the thousands of other industrial enterprises, we find that ultimately 2,500,000 commercial cars should be needed for regular industrial haulage. At the present time there are 900,000 commercial cars in use in these industries. As this constitutes about 40 per cent of the estimated potential requirements in this field, it is believed that the total of 2,500,000 trucks is ultra-conservative.

Another rich field, which at the present time is practically untouched, lies in the great agricultural states. Few really serious attempts have been made to exploit the farm field for motor trucks. Of course the wide spread depression in agricultural circles for the past two years has influenced many manufacturers and dealers in their plans to reach this market. With the resumption of buying on the part of the farmer, however, this market again becomes an important consideration.

Estimated Farm Truck Requirements

	Total Farms	Farms Over 100 Acres	Estimated Truck Requirements
New England States	156,564	65,525	40,000
Middle Atlantic States	425,147	168,607	90,000
East North Central States	1,084,744	486,550	265,000
West North Central States	1,096,951	798,142	450,000
South Atlantic States	1,158,976	290,277	165,000
East South Central States	1,051,600	239,831	140,000
West South Central States	996,088	366,268	200,000
Mountain States	244,109	169,750	95,000
Pacific States	234,164	88,381	55,000
Total	6,448,343	2,673,331	1,500,000

There are 6,448,343 farms in the United States. Of this total 2,673,331 are 100 acres or larger. Ultimately there will be required at least one commercial car for each two farms of 100 acres or over. In addition to the larger farms there are hundreds of thousands of smaller, intensively cultivated areas given over to fruit growing, truck gardening, etc., where the high value of crops produced per acre make it both feasible and necessary to use commercial cars.

An estimate of 1,500,000 trucks for farm use, therefore, is conservative when it is remembered that this represents an average of less than one truck for each

four farms. When it is also considered that 2,146,512 farmers now own automobiles, and that 61 per cent of all American farms are operated by owners, the above estimate appears, if anything, to be too low.

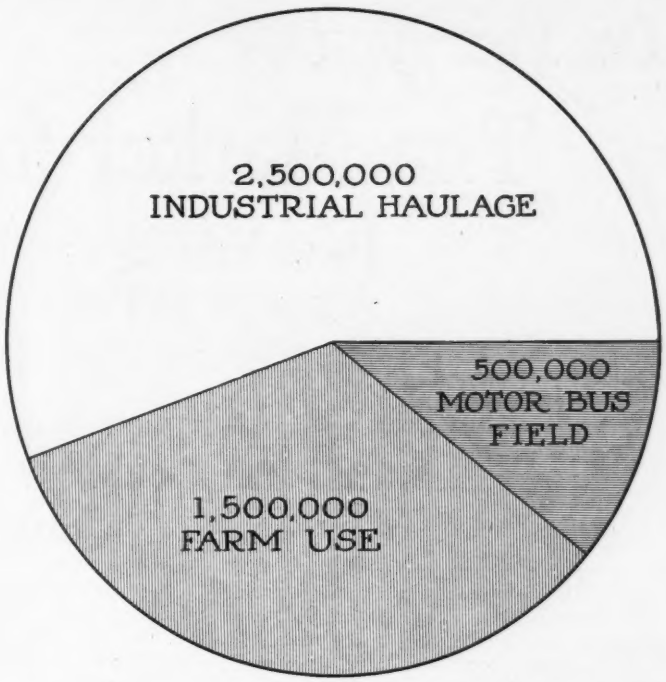
The motor bus field is more difficult to estimate as developments along this line are comparatively recent. On the basis of the number of registered buses now in use in certain of the more thickly populated states, it is believed that at least 500,000 commercial cars will be needed for the operation of such bus lines. In all probability this estimate is too low, but facts are not available upon which a more accurate analysis can be based.

Considering the transportation field, therefore, under the three principal classifications, the commercial car market should be about as follows:

1. Industrial use	2,500,000
2. Farm use	1,500,000
3. Motor bus field	500,000
Total	4,500,000

To maintain this number of commercial cars in operation an annual production of nearly 900,000 trucks per year will be required. This is more than half of the present production of passenger cars, double the present plant capacity of existing motor truck companies, and nearly three times the maximum production which has been attained so far in the commercial car field.

In the light of available information, therefore, the commercial car industry appears to be just emerging from the primary stage of development with respect to total market possibilities. Certainly it requires no prophet to foresee prosperity for those manufacturers and dealers who view the motor truck industry with the proper perspective, seeing in this form of carrier the solution to the problem of making America's great public highway system of great benefit to the greatest number.



The Potential Market for Commercial Cars Totals 4,500,000
The estimates for the motor bus field are for current requirements only

Washington Motor Bus Sentiment Reflected Throughout Country

By LEE LAMAR ROBINSON

WASHINGTON, June 8th. The motor bus is slowly but surely forging its way ahead as a public utility and, particularly, as an agreeable substitute trolley car, if observations made in Washington be any criterion. The experiences of the traveling public in the National Capital with the local street car service have done much to create a sentiment in favor of the bus. In addition to this, there seems to be a feeling that, regardless of whether a street car company is furnishing a fair service, the motor bus, because of its mobility, offers advantages over the electric car.

Washington, because of its political character, and its population made up so generally of persons from the various states, reflects public opinion on a given subject more clearly doubtless than any other city. Members of Congress, and other government officials, naturally have brought to their attention, officially, innovations of practically every possible character, and have opportunities for studying them.

There is without a doubt a sentiment on the part of Congress that the day of the motor bus is at hand, and many of them believe that the electric lines will shortly have to begin the operation of buses themselves, just as many believe steam lines will have to begin the operation of trucks as freight feeders.

A particularly keen fight has been on for months in Washington between the operators of bus lines and the officers of electric street railway lines. In the District of Columbia members of the Board of Commissioners of the District constitute a public utilities board which has jurisdiction over utilities. Each application by a motor bus company for a franchise to operate over a certain route is closely questioned by representatives of street car lines, and often objected to strenuously.

The utility commissioners have shown a decided disinclination, however, to disregard the protests of the street car companies against additional bus lines, unless it is shown that the interests of the public service do not call for such a particular franchise as is applied for.

Bills are now pending in the Senate and House under which motor bus lines would have to pay a tax of 4 per cent on gross receipts for business done in the District of Columbia, this in addition to any other taxes authorized by law. So far no action has been taken on either of these measures. The House measure requires that each company operating vehicles for hire on prescribed routes shall make a return under oath on or before the 15th of each month, as to its gross receipts for the preceding month; that the collector of taxes shall then render monthly bills to these transportation companies. The opinion seems to be this particular measure will not prevail.

Motor bus lines in the District of Columbia have done very well for new ventures, due to the wide expanse of the District, and the fact there is so much territory not covered by street car companies and which could not be covered by them. For example, the public parks are numerous and of great area. Some of them, such as Potomac park, are popular playgrounds despite the difficulties in the way of reaching them.

Recently, the army officer in charge of Potomac park caused the operator of a motor bus line into the park to be apprehended on the grounds that the operation of a vehicle for hire was forbidden. This action is being contested in the courts at present. But, despite difficulties such as this, and others, the impression seems to be the motor bus has come to stay, and reports from cities other than Washington tend to confirm this view.

Do You KNOW

The Market for Your Truck?

Have You Ever Made Any Systematic Attempt to Find Out What the Market Conditions Are in Your Territory?

This Article Tells How to Proceed in Making a Market Research as It Relates to Motor Trucks

By GEORGE W. GRUPP

A VERY wide-awake motor truck manufacturer, and dealer, is alive to the fact that competition is becoming more keen each day; and that the margin of profit is growing smaller per unit. This has caused them to recognize that scientific methods of making a market research for motor trucks must be made.

But what is meant by this term, "market research?" Briefly, it means nothing more than a thorough study of all basic facts which control the marketing of a given commodity such as a motor truck.

What such research will do if properly done may be summarized in this fashion:

1. It will aid in eliminating guess work;
2. It will reduce the amount of wasted energy, time and money;
3. It will point out the existing points of weakness;
4. It will enable one to strengthen the strong points;
5. It will provide material on which to build up a definite plan of selling methods and organization;
6. It will enable one to forecast future possibilities with greater accuracy;
7. It will aid in revealing the various habits and characteristics of different classes of buyers and prospects; and.
8. It will enable one to better understand economic and social conditions which affect the sale of motor trucks.

But before setting out on an excursion into the field of market research a number of things must be considered, such as:

a. Organization;
b. Tools necessary;
c. Sources of material; and,
d. Compilation work.

Analyst Must be Competent

The organization for the carrying on of this work must at least consist of a director. The size of such an organization and the number of personnel depends on circumstances. Therefore no further remarks will be made on this subject other than to add that a competent man must be placed in charge of the research if it is to amount to anything. He must understand research methods and have a broad knowledge of economic and social subjects.

Now figuratively speaking, the tools necessary in making market research are:

1. An unbiased mind;
2. Plenty of common sense;
3. Questionnaire; and,
4. Stationary supplies.

Numbers 1, 2 and 4 are too obvious to discuss further, but in the case of number 3 a few remarks should be made. To begin with the questionnaire may be of two kinds. The one confines itself to internal uses, while the other concerns itself with external uses. The latter kind has two methods of application,—by mail, and by field worker. No matter which kind of questionnaire is used, and both should be used, great care should be given to its construction. The questions should be put in a logical manner,—aiming at a specific objective, and of such phrasing as not to cause the one from whom information is sought to refuse to answer, or to refuse to answer with perfect freedom. The compiler of the questionnaire must understand his problem, and try to see through the eyes of the one questioned.

To put these tools to good work one should know the sources of material. These may be divided into three classes, namely:

(a) Printed information;
(b) House records; and,
(c) Original information.

Printed information is found in the shape of

1. Trade papers;
2. Daily newspapers:
3. Reports and pamphlets issued by
   (a) Chambers of Commerce,
   (b) Merchants' associations,
   (c) Civic reports such as federal, state, county, city, license bureaus,—and,
   (d) Research bureaus;
4. Rating books; and.
5. Directories of all sorts.

House records are all such sources as:

(1) Sales records;
(2) Cost records; and,
(3) Correspondence, etc.

The sources of original material are:

(1) Local dealers;
(2) Banks;
(3) Chambers of Commerce;
(4) Merchants' associations;
(5) Truck owners;
(6) Horse vehicle owners; and,
(7) Personnel of house in question.

The printed information may be compiled by some employe in the local library where all such information is available. If such records are found to be incomplete it becomes evident that better methods in this direction should be employed.

Original information is only obtained as a result of using the questionnaire sent out by mail or filled in by a field worker.

Knowing the sources where information may be obtained, a few remarks on methods of compilation are not amiss.

There are two methods of applying the questionnaire for external purposes.

By Mail vs. Field Worker

When using the mail method, the purpose of the questionnaire should be thoroughly explained to the one receiving it. And to get a wide range of opinion the questionnaire should be scattered amongst different classes of people. Now should this method be employed then one must bear in mind that the results are usually by no means the most satisfactory.

The most satisfactory method of using the questionnaire is the one which necessitates the engaging of men, or yourself, in going about interviewing people on the questions outlined. The field worker must go to different sections in the territory, to get samples of the various types of possible and actual buyers of motor trucks, and the like. This method requires a considerable amount of tact. The powers of observation must be highly developed. Answers to questions should be put down after leaving the one interviewed, if possible, so as to encourage greater freedom in expressing replies. But under no circumstances should all replies be taken as whole wool truths. Men who make replies should be studied with the idea of determining the merit of their replies. Some replies are absolutely worthless, while others possess considerable merit.

Mapping and Charting

All data compiled by means of questionnaires, printed matter and house rec-

ords should be filed geographically. The clippings should be pasted on stiff cards and the original and transcribed data should be tabulated according to the specific subject of a particular zone or district of the entire territory. And for purposes of analyzing and visualization summary data should be charted and mapped.

The methods of making an analysis of the motor truck market are here briefly outlined. The procedure of treatment will be:

1. General survey;
2. Commodity;
3. House and competition;
4. Outstanding features;
5. Market; and,
6. Distribution.

Market Facts and Trade Tendencies

The general survey resolves itself into two classifications, namely, market facts, and trade tendencies. Under the head of market facts all possible information on local territorial and national business conditions should be tabulated and studied. Further, all summary facts on the industry; general location of the motor truck markets; the various influences which affect the market such as roads, artificial restraints; an historical study of final drives, models offered, actual production, trend of prices and the like should be carefully gone into to get a basic understanding which will serve as foundation for further research.

With such information acquired, we can proceed to the next step—trade tendencies. These tendencies are deducted after a most searching and painstaking analysis of the general market facts. This means that all the facts must be weighed and compared before an attempt should be made to formulate conclusions as to trend.

The General Survey

The general survey on market facts and trade tendencies serves as a background for the next step—analysis of the motor truck as a commodity. This analysis is accomplished by making an inquiry into:

1. Demand;
2. Serviceability;
3. Quality;
4. Price;
5. Profits; and,
6. Competition.

In making an analysis of demand the first thing to do is to make an inquiry into the demand for different capacities of motor trucks by the different kinds of businesses; and an inquiry into the actual production, and a comparison of this data with what the manufacturer in question is doing, offering and producing.

Another factor in demand which is of great importance is that which concerns your vehicle. The answer to this should be found with the aid of a questionnaire. Your local newspapers may be of considerable help in this direction. A suggested demand questionnaire to be used on prospective buyers and owners of motor trucks follows:

1. Are you interested in a motor truck, from what angle, and why? If not—why?
2. What makes do you think are the best, and why?
3. Do you prefer a cheap motor truck, and why?
4. Did you ever hear of our truck? How and where?
5. What do you think of our truck?
6. Do you think the demand for motor trucks might be improved? And how?
7. Did you ever own a motor truck? If so, what was your experience?
8. Would you be interested in a motor truck?
9. If interested, in what make? If not interested, why not?
10. Do you ever read motor truck advertisements? If you do, what do you think of them?
11. What improvements in the motor truck would you suggest which would increase its sale? And why?
12. Does the price and cost of operating influence you in any way as to buying, make, and the like, and why?

The next thing to determine is whether or no the demand for motor trucks in your territory is accomplished by sheer force, or if it is natural. Climatic and locality influences on demand should also be gone into very carefully.

Conclusions on serviceability of your truck and other makes should be ferreted out by using the questionnaire along the lines of the few suggested questions which follow:

1. Do you think the motor truck is a real serviceable vehicle of transport, and why?
2. Which makes of trucks do you think and have you found, to be the most serviceable, and why?
3. What do you consider as the elements of service of a motor truck, and why?
4. What in your opinion are the strong and weak points, from service point of view, in motor trucks, in general?
5. What has been your experience or knowledge, of serviceability of our motor truck?

Further, as a dealer or manufacturer an examination into the qualities of raw materials used, workmanship, appearance, design, finish, etc., of your vehicle should be carefully gone into and compared with that of your competitor's product.

Analyzing the Price Factor

One thing which always affects the quality and market for motor trucks is price. And for this reason this subject is worthy of considerable time and thought. In lending energy in this direction one should first make an historical study in average prices on the different models. Such data serves as a basis on which to formulate correct conclusions on price fluctuation causes, and the general drift of prices when compared with general conditions throughout the period over which the price study is made. Further, one should make a comparative study of current year prices of the different makes of trucks of a given capacity—to determine one's position in relation to the entire field of competitors.

Prices and profits are always companion rails. This for the reason that no sane business man would quote a price without including his margin of profit As a manufacturer, or dealer, one must place the retail price of the truck at a figure which will attract buyers, and insure a reasonable profit. On the other hand the manufacturer cannot hope to attract, or hold high grade representatives if the price of the truck is not sufficiently luring to insure for them a fair profit for the efforts they are expected to put forth. The majority of dealers wish to sell the truck which gives the best value for the money, and which gives them the biggest possible profit. Therefore a most careful scrutiny into profits made by dealers of different makes of trucks in different sections of the country should be diligently made in order to keep pace with the current drift of affairs. To get at this study of profits, as it should be done, will entail a study of sources of supply of raw materials, prices, transportation rates and facilities, processes of manufacturing, or assembling of motor trucks, etc.

Investigating Competition

The quality, price and profit phase of the analysis having been completed, the next thing to investigate is the question of the house and its competitors. This involves a detailed study into such factors as:

1. All information concerning raw materials;
2. Methods of manufacturing;
3. Departmental intelligence;
4. A detailed study of cost;
5. Personnel; and,
6. Methods of distribution.

More than that an historical study of production should be made to determine the trend of demand. By comparing this with your experience, the result will be your rating. Further, analyze the total production and sales of the different competitors. And again compare this data with your experience. In fact, this same system of comparative study should be carried in detail in every corner of your territory.

Other comparative studies,—between the house and competitors, should include the mechanical merits and demerits of the various makes of trucks, the service rendered by dealers and manufacturers, the sales and advertising efforts, prices, profits, cost of production, dealers' aids, most active markets, systems of distribution, selling terms, policy, sales and advertising methods, location of markets and the number of trucks sold—classified according to make, capacity and business; location of competitive factories and dealers, plant equipment, transportation facilities, plant's nearness to market and raw materials, freight rates, history of competitors as to age, growth, size, credit, personnel, etc., and the locating of the most profitable markets.

For a minute let us go back and try to show how to interpret data. Let us take sales statistics for example. In this case let us assume that your analysis of sales of the one-ton truck revealed that "A" sold 60 per cent of the total number in Phoudonkville, "B" sold 30 per cent, and "U" sold 10 per cent. Now what do the figures show? They indicate that "U" rank third. Is that all? They prove that "A" sells six times as many one-ton trucks as "U," and that "B" sells three times as many as "U." Anything more? The wide margin in difference in percentage gives evidence that competition is not very keen, and that the possibilities of increasing your ("U") sales are very good, if you are willing to put up a little fight. If the percentage of distribution of sales had shown that "A" sold 35 per cent of the trucks, "B" sold 33 per cent,

(*Continued on page 68*)

After the Sale——What?

Isn't It as Important to Sell a Truck Owner on the Economical Use of His Truck as It is to Sell Him the Vehicle in the First Place?

Build for the Future. Additional Equipment Will be Needed

By A. V. COMINGS

EVERY motor truck manufacturer emphasizes the economy of his particular make of truck; in his trade advertising, in his circulars, in his search after business through every channel. He preaches it to his dealers, and they, in turn, drill it into all the prospects to whom they try to sell the motor trucks.

The prospect is told how few gallons of gasoline the truck uses over given distances; how little lubricating oil it consumes; how staunch it is and how little the expense of upkeep will be; how good the dealer's service facilities are in order that the truck may be idle a minimum amount of time through breakages, etc.

But how often does the manufacturer or dealer follow up the sale of a truck to help the owner to a really economical use of the bread winner?

Of what possible value is the saving of a few dollars per day on a really economical truck, if it is all thrown away by inefficient loading, driving and delivery methods?

The new owner may be getting wonderful economy in gasoline, oil and upkeep, but if he is losing money with his truck, through the inefficient handling of it in loading and delivery, he forgets all about the other economies, and is very prone to condemn motor truck haulage as expensive, over-rated and not fitted to his particular line of business.

In the new order of business, as applied to the successful merchandising of motor trucks, the retail dealer who gives some attention to helping his customers in the successful operation of the machine after purchase will stand a much better chance of repeat orders than the dealer who is content to "get the money" and forget the customer.

Dealer Must Study Loading Methods

It is not expected that the dealer may know all the means of efficient handling of motor truck loads,but it surely is within the power of the dealer of average intelligence to study motor truck operation enough that he may help his prospect solve the problems of cheap haulage. Any city of average size will furnish plenty of examples of the right and wrong way to handle trucks, and the dealer who keeps his eyes open, and who insists that his salesmen do the same, will be in position to help his customers to a great extent.

The pictures shown herewith give concrete examples, for instance, of right and wrong methods of loading coal. They were picked up in a single day's careless wandering about Columbus, Ohio, and similar conditions may be observed in almost every city in the country.

One of the illustrations show a hopper car of soft coal, spotted at the "delivery platform" of an inefficient coal yard. Two idle trucks are shown; there is a third that could not be included within range of the camera.

While I watched, it took two laborers, and the half-hearted assistance of the three drivers, over half an hour to get the hopper car doors open, and enough of the heavy lump coal out onto the platform to begin loading.

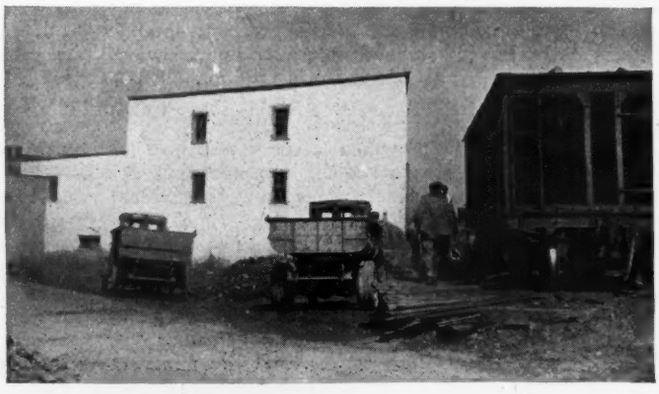
Then while two of the drivers stood by and loafed, the third driver and the two laborers began slowly to load one of the trucks.

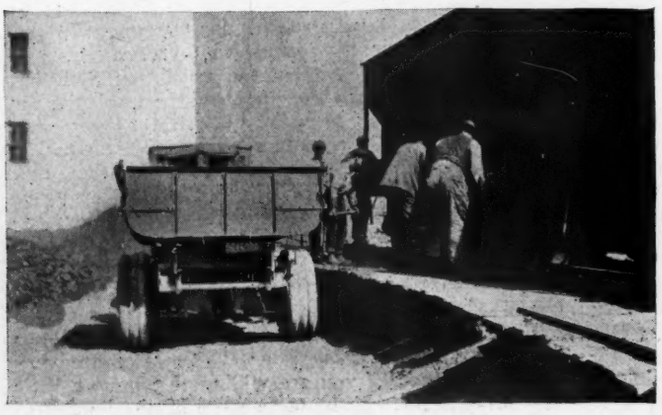
Nearly ten thousand dollars worth of motor equipment guaranteed by manufacturer and dealer as "an efficient and economical method of transportation," tied up for over an hour, because the owner didn't use them efficiently.

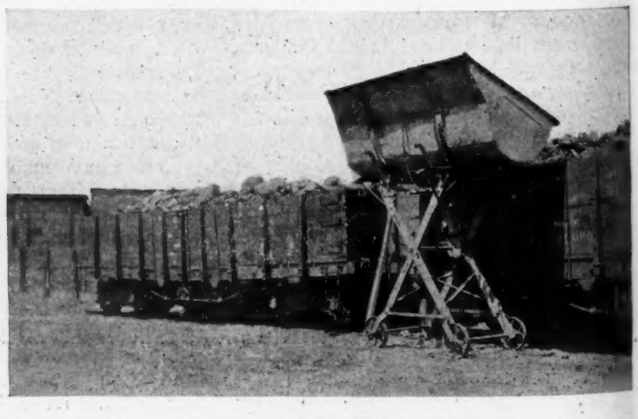
I can plainly hear the manufacturer and dealer chorusing, "Well this is none of our business, after the truck sale."

Well, now isn't it?

When the end of the year comes, and that coal dealer figures out how much it has cost him per ton to deliver his coal during the twelve months, he is going to find that his trucks haven't been nearly so economical as the dealer told him they would be.







Three Coal Yard Scenes Showing Efficient and Inefficient Methods of Loading Coal Delivery Trucks

Note the extreme inefficiency depicted in the upper illustration. Both trucks and drivers are idle. The two lower views show proper and improper methods of loading coal. Modern equipment becomes inexpensive when compared with resulting economy

Although Expensive, This Installation is the Only Solution for the Rapid Loading Problem in Coal Yards Doing a Quantity Business. The Loading Chutes of the Bins Are Shown at the Left and the Overhead Hopper Unloading Tracks at the Right

And when he totals up the delivery cost, he isn't going to give a thought to his inefficient loading methods as the real reason for the high cost. He is going to remember only the various times his trucks were out of service in the repair shops, and his imagination is going to multiply those hours into a figure that will absorb all the loss of time that really was due to his own poor methods.

Why the Owner Becomes a Knocker

And right there he's going to become a knocker of motor truck transportation. And even though he continues to use them, he will do so grudgingly, will blame them for all his haulage costs, and in all probability, when he is forced to buy new trucks, he will get some other make, feeling that his present equipment is not as economical as he had been lead to believe.

Now suppose, for instance, that the truck dealer who sold these trucks to this coal man, had pointed out the inefficiency of his loading equipment when the sale was made. Suppose he had brought to the attention of the dealer the Lee loader, illustrated herewith, and had explained to him that with a loader like this, a very inexpensive affair, two men could shovel the coal from the car while the truck was off on a delivery, and that on its return, empty, it could be driven along side this loader, and with one movement, could be loaded in a few seconds, and be again on its way **earning** money, running for its owner rather than **wasting** money standing idle.

Personally, I believe that it is almost as valuable to **sell a truck owner on the economical use of his truck,** as it is to sell him the vehicle in the first place, and service such as this is not forgotten when the owner is in the market for an addition to his fleet.

The pictures on this page show a typical bin installation for a large coal yard. This installation, of course, is expensive, but it is the only solution for the quick loading problem in yards doing a quantity business. Cars may be run on to this dump, unloaded in a very short time, and the trucks merely open the chutes below and secure their loads very quickly.

Co-ordinate Sales With Education

Truck manufacturers and dealers might as well realize first as last, that **economic facts must prevail,** that motorized haulage will advance only as fast as hard-headed business finds its claims economically sound. A good tool isn't worth much in unskilled hands; and a motor truck is a mighty good tool if properly used. There is a much quicker future for the motor truck if dealers will carry on educational work co-ordinate with their sales efforts.

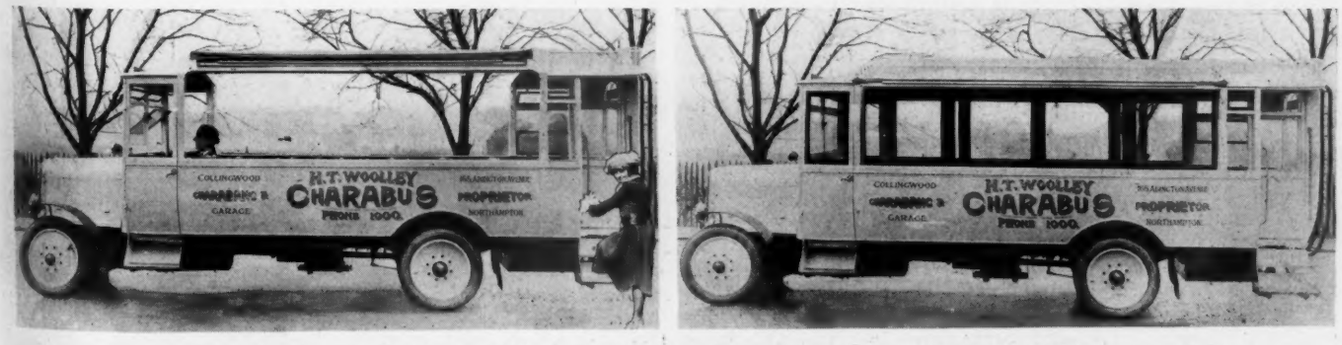
Folding Roof Makes New Bus Ideal for Sightseeing or Touring

An English body builder recently developed a new type of vehicle which has been christened a charabus, since it is both a bus and a charabanc, the latter being the English and French term for open buses or stages. It may readily be transformed from an open to a closed vehicle since the main portion of the roof is designed to fold up so that it occupies only a narrow portion along the center while the side windows may be dropped out of sight.

The fact that the roof occupies so little space when the bus is "open" makes it ideal for sightseeing and for touring. Front and rear sections of the charabus are permanently built in order to protect the occupants from wind and dust. Obviously the construction is also applicable to street cars. The vehicle has a normal seating capacity of twenty-eight passengers with six auxiliary seats which are placed in the aisle. While these seats may readily be swung out of the way, they are really only suitable for long trips since they block the aisle, preventing easy exit. It is made by Christopher Dodson, Ltd., Cobbold Road, Willesden, N. W. 10, London, England.

Trucks Replacing Ox Teams in Mexico

Imports of American motor vehicles into Mexico consisting of 6,750 cars and 1,482 trucks showed an increase in 1921 compared with the preceding year. Shipments may be expected to be even greater this year as automobiles, in view of government attitude, are sure to contribute considerably in developing outlying sections. Already mining companies and oil operators, who have constructed roads between their properties and railroads, are gradually replacing ox teams with trucks.



Showing the New Type English Vehicle Transformed From an Open to a Closed Vehicle. Its Name, Charabus, is Coined From the Words Charabanc and Bus

What Does the Farmer Expect From His Truck?

Using a Truck to Haul From the Farm to the Market and Using the Truck in the Field Are Two Entirely Different Things. The Real Farm Truck Calls for Some Radical Re-designing. Why Some Present-Day Trucks Do Not Meet the Farmer's Requirements

By E. R. WIGGINS

THERE are many trucks on the market which are designated as farm trucks. Primarily these trucks are intended for transporting farm products from the farm to the railroad station or direct to market. As such these trucks are performing remarkably well and are making good in every respect. The object of this article is, however, to point out that there are other things which the farmer desires to accomplish with his truck but which present day design does not permit.

Many trucks which are today sold as farm trucks do not even adequately meet the farmer's hauling requirements, particularly in regards to loading and unloading. In many cases the body platform is entirely too high. A recent investigation made by the writer among farmers in Iowa, where nearly every farmer has a truck, shows that the farmers as a whole are looking forward to the day when his truck will be so designed that it will not only function as a road hauling unit but will be a real help to him in the field.

Among the chief advantages given by farmers for the ownership of trucks are convenience, reduction of expense, a better market, saving of horses and saving of time. Many farmers say that for distance more than three miles from a railroad the truck is indispensable.

A very important reason given by many farmers as to why they do not use their trucks for farm work is that the truck bodies are too high up from the ground. The consideration, then, is one of design, and if the farmer is to be sold trucks in the future, the appeal must be such that the truck is capable of being efficiently and economically used in crop production. It must replace the power for hauling that is now used.

Farm Labor is Expensive

The present day farmer is particularly interested in the saving of labor. In hauling to and from the field the hard labor involved is due to loading and unloading. Where the body is higher than the present day wagons, a farmer is not interested, and present day wagon heights are tolerated only because there is nothing more attractive. Many farmers state that the minimum height material should have to be lifted, pitched or shoveled, to reach the floor of the body, should not be over 40 in. above the ground. Lower levels of flooring are to be preferred. In some of present trucks offered the distance from the ground to the floor of the body is 68 in.

Many have said that the problem is one entirely for the body makers to solve. The building of an entirely special farm work truck is shared by the body builders, but if the design of the truck is such that the floor is too high, it should be changed so that a low body can be used. According to Farmers' Bulletin No. 1201, a large number of farmers report the inability of the present trucks to operate on soft ground.

To overcome the non-traction of the drive wheels in soft soil, many farmers are now equipping their trucks with large pneumatic tires, but this adds to the body height, in some instances as much as eight inches. The amount of labor added by these extra inches is enormous, especially in such work as handing up to load corn bundles in the field, when silos are being filled. The ultimate farm truck, therefore, must have a low body platform.

Farm Hauling is Largely Bulky

A major portion of the hauling on the farm is that of bulky, heavy material. Take hay for example. A present standard size of rack is one that is 16 ft. long by 8 ft. wide. It cannot be wider and clear the gates, and if it is longer there is extra work added in loading, when the loader is used. This same rack is used for corn and small grain bundles. Many farmers now have these racks not higher than 36 in. above the ground. The truck must meet these conditions, especially in hay loading, where larger windrows must be made so that the loading can be done faster than it is with horses. When grain bundles are being hauled to the thresher, the truck must be so designed that it can be stopped and started easily and run at considerable speed, so that there will be but a small loss of time between shocks. For economical reasons the time intervals of loading and unloading should necessarily be short.

The way bundles of corn or grain are usually loaded is for the man on the truck to load and drive at the same time, while a second man lifts the bundles from the ground. The ultimate farm truck therefore will be arranged so that it can be steered to the next shock or pile, so that the man pitching or handing up is close to the truck. Control levers may even be arranged so that the driver can reach the clutch lever without climbing over into the driver's seat. There should be no delay in any of these operations. The truck, especially in the clutch, should be especially well built to withstand the extra strain of starting and stopping, as often as is required to load a ton or more of hay, corn or grain. For side hill work the brakes should be designed so that the man on the truck will not experience trouble or delay in setting or releasing them from a position back of the seat.

With the real low platform farm truck, the method of unloading hay is the same as that of the present day. Here the hay fork is used most successfully, but for unloading at the thresher, silo filler, or husker, the future truck should include a quick acting hoist, so the load can be neatly dumped handy to the machine. As the material is being run through the machine the truck can be on its way back to the field. There is a vast field of investigation and thought needed for future truck design in the matter of hauling from the fields, for with the exception of corn that is husked on the hill, leaving the stalks in the field (a very wasteful method), all the crops that are raised, including the straw, are hauled from the fields.

Must Negotiate Soft Fields

But that is not all. In our new agricultural fertility program, fertilizer by the carload, in the form of lime and phosphate, must be hauled from the station out on the land, and no method of hauling does this better than the truck. The real farm truck should be able to run over the soft soil, and either spread the lime or dump it in piles convenient for the regular spreader.

Professor J. B. Davidson, head of the Agricultural Engineering Dept. of Iowa State College, at Ames, sees a wonderful future development in farm trucks. He believes the time will come when the power of the truck engine will be utilized to run cutting and loading machinery that can be easily attached to the truck.

For example, where corn is being harvested for the silo, the truck would be attached to a two-row harvester, and as the truck moves forward pushing the harvester, the corn will be cut, elevated back on to the truck body and loaded. When the truck body is filled, the harvester will

be detached and the truck will run to the barn in the conventional manner. The fact that there is a well designed power plant at hand, shows the practicability of using the truck attachment to husk corn from the hill as the picker does, or to drive a loader for shocks of grain or corn. All of which points out how little we have traveled in the true development of the farm truck. The possibilities along the line of farm truck design are limitless.

Wider Tread Desirable

With the ultimate farm truck higher loads can be hauled because the center of gravity will be lower. A number of farmers have complained that in hauling bundles of grain or corn in the present day trucks, there is a tendency to tip. It is also found that to put on a full capacity load the top is so far up from the ground as to be unable to clear many building doorways. While a standard tread is to be desired for the drive wheels it is not absolutely necessary, and some farmers are wishing their trucks had a much wider tread. With gates that will clear an eight-foot rack, and with lanes in which the tractor is run to and from the fields, in which the tracks over the ground are 70 in. from outside edge to outside edge, there is no reason why the truck for the farm cannot have a wider tread than the standard. With the hard roads that are now being built in every state there is no objection to the wide tread farm truck.

The body makers should work more in co-operation with the truck manufacturers than has been true in past, if a real farm truck is to be developed. The former have tried to meet the farmer's conditions, for farm work, by adapting bodies to trucks entirely suited to road work, but not field work.

Let us consider some of the requirements of the farmer in the fundamental design of bodies as related to the ultimate farm truck. According to government investigation, the one-ton size is the most popular for farm use. But many farmers have told the writer that if there were real farm trucks to be purchased the desired capacity would run from 1½ to 2 tons or even more, depending upon circumstances. The farmer desires a wide body, short in length, not as narrow as now prevails. This is of importance in hauling stock. This body or rack should have a common floor for all the different side boards that are to be used. The advantage of being able to haul a load of hogs or cattle to market and to return with a capacity load of coal, limestone, or rock phosphate, haul the latter to the field, and while in the field load on corn or grain, cannot be overlooked. Time must be saved in being able to change from one arrangement to another without the use of additional parts.

In general, the floor of the body and shallow box forms the basis of body design. Where loose grain is to be hauled, the first side board need be but 11 in. high in place of 14 in., as is now true in many designs. This will meet the condition for a strong box to haul sand, crushed rock and other such commodities. Hinged sides offer great possibilities to meet the needs for hauling stock, loose grain or hay. The ultimate farm truck will have an efficient shoveling board even if a dump arrangement is provided, because at times some loads have to be shoveled. The shoveling board for trucks has as yet been given but scant consideration by the designers.

In the future design of suitable hoists for dumping, more thought should be given to the clearance allowed back of the driver's seat. Where hay or bundles are being hauled all the space possible has to be given to the load, first because of bulk of the load and second for the proper distribution of the load.

Standard Motor Bus Construction Proposed

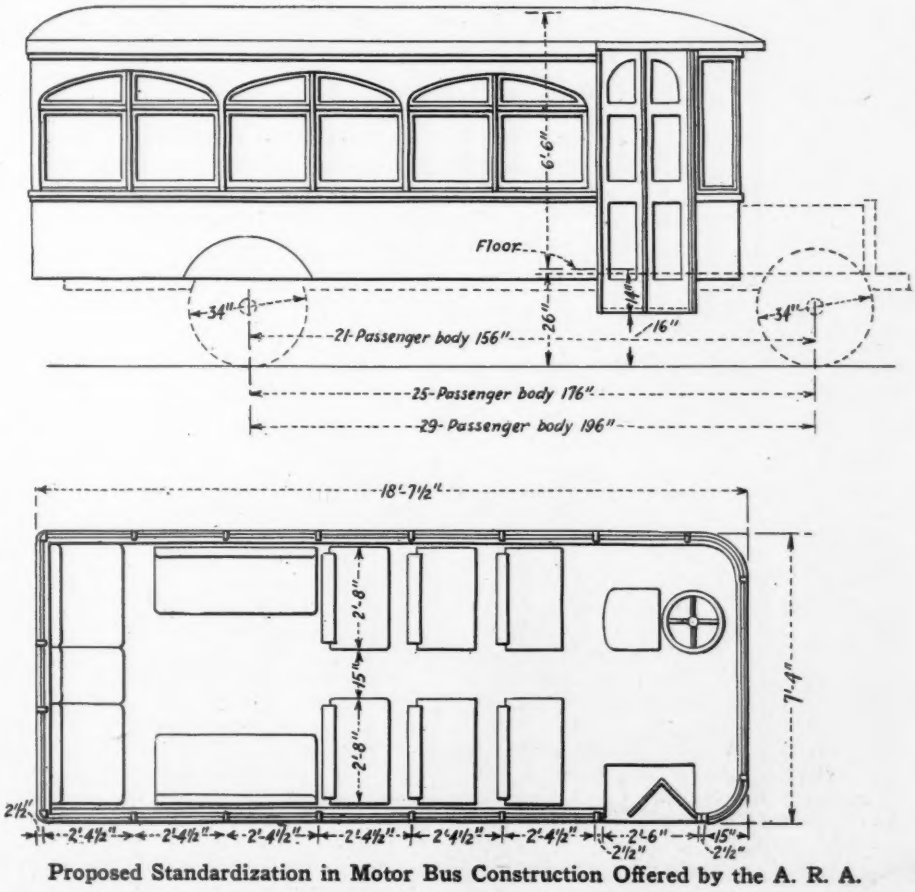
THE recent proposal for standardization in motor bus construction drawn up by the Engineering Committee of the American Railway Association carries with it a significance that will be received with great interest by the entire Commercial Car Industry. This development is felt to mark a definite effort on the part of street railways to enter the bus field. Although originally regarded with suspicion as a competitor, street railways now recognize that their interests and the interests of motor trucks may be so co-related as to make them an important supplement—an economical auxiliary. It isn't mere conjecture that prompted C. A. Morse, of the U. S. Railway Administration, to make the prediction that possibly tomorrow it will be found more economical to tear up the tracks and operate motor truck transportation in place thereof. The motor bus status in the railway field is gradually being established.

The accompanying illustration and dimensions for three sizes of chassis show the tentative plans drawn up by the committee.

No. of passengers.....	21	25	29
Wheelbase (inches) ...	156	176	196
Engine (horsepower) ..	30	40	50
Tread (inches)	66	66	66
Capacity of rear (tons).	2	2½	3
Braking surface (sq. in.)	150	175	200
Approx. max. weight (lb.)	4500	5000	5500

Other recommendations are:

(a) Low-hung type of chassis frame with a maximum frame height of 26 in., preferably lower.
(b) Spring suspension.
(c) Engine preferably of either poppet or sleeve valve type with maximum speed not to exceed 1300 r.p.m.
(d) Gear ratio not to be less than 7 to 1 and not more than 12 to 1.
(e) Metal plate or spoke wheels.
(f) 34-in. solid or semi-solid tires; pneumatics where low floor height not desired.



Proposed Standardization in Motor Bus Construction Offered by the A. R. A.

A Merchandising Story That's Different

Here's a Real Example of Truck Transportation Merchandising. The Prospect in This Case, Although Anxious to Buy Trucks, Couldn't Spend Over a Certain Sum. Finally the Buyer's Problem Was Solved. The Wide-awake Salesman Not Only Saved the Buyer His Business But Consummated a Large Sale as Well

AN interesting merchandising story which recently came to our attention shows that it takes more than mere sales talk to satisfy the buyer—that sometimes a little ingenuity and thought is essential to get business. In this particular case more than mere quoting of figures for so many trucks was demanded. It meant doing something radical to help the buyer out of a serious situation. It also tested the resourcefulness of a salesman alert to grasp every little opportunity in an effort to consummate an honest deal.

The buyer in this instance was Mr. Griffin, proprietor of the New England Live Stock Co., Lynn, Mass. Mr. Griffin makes a business of raising pigs. And raising 100,000 porkers a year is no mean undertaking. A considerable quantity of food is required to raise 100,000 hogs a year. Like other piggeries the majority of the food used by this company in the feeding of its pigs is in the form of garbage obtained from Lynn and the neighboring cities of Salem, Wilmington, and Peabody.

The garbage collected from these towns was formerly transported via railroad to a siding near the farm, from whence it was carried by teams direct to the farm. In the cities mentioned the local wagons would unload their garbage onto freight cars, which would eventually find their way to the farm siding. Not only would the freight cars reach their destination late, sometimes as much as four days after they had been loaded, but they would lay untouched at the siding until the slow moving teams could get to them. In the meantime the surrounding country was saturated with the stimulating fragrance of garbage. We can imagine the reader sniffing at this time.

The truth of the matter is that many of those living along the route traversed by this slow-moving garbage caravan and in the vicinity of the siding couldn't appreciate this fragrance. The objection of the people took the form of a petition proclaiming the caravan and the siding a public nuisance. As a result garbage hauling via the railroad received a quick, death-dealing blow. The practice had to cease.

But He Needed Transportation

The outlook, however, was entirely different for Mr. Griffin. Prospects for continued business on a paying basis looked indeed dismal. He knew that without the garbage from the surrounding towns he would be compelled to go out of business. Naturally, Mr. Griffin's next move was to investigate the field for suitable means of transportation to supplant his old system. After thoroughly turning the matter over he came to the conclusion that he had but one alternative—the motor truck. He believed that motor trucks could do the work, but he also knew that he could afford just about so much money in motor truck transportation and that particular amount could not exceed $10,000.

To make a long story short, he called in a number of truck representatives. He received plans and bids of all sorts. But the best bid of all called for the sum of $23,000. Other bids ran up to $50,000. By this time he was about ready to quit the business.

It was at this particular period that J. D. Eggleston, Eastern Truck Representative of the Paige-Detroit Motor Car Company, called upon Mr. Griffin. Mr. Eggleston got the same proposition presented to him.

"Ten thousand dollars and no more is all I can afford to invest in motor trucks and besides you have got to satisfy me that the operating expenses of these trucks will not exceed the former cost of shipment by freight."

But Mr. Eggleston was not to be discouraged as easily as were the other two score or more truck representatives that had already figured on this job. He realized from the very beginning that trucks alone could not solve this problem. To do this job by trucks alone would necessitate at least eight or ten machines. At that the trucks would have to stand idle a greater part of the time because the city garbage wagons unloaded only twice a day, at 11 a. m. and at 4 p. m. To keep the trucks waiting long intervals while they were being loaded was a money wasting proposition.

Consequently he planned upon trailers. He figured that the semi-trailer would be

All Work of Assembly Was Accomplished Right on Mr. Griffin's Farm, Under the Supervision of Mr. Eggleston, Who Worked Together With But One Helper

Only Makeshift Equipment Was Employed

Showing One of the Jobs Finished and Ready for Service

just the thing and the only way in which this haulage problem could be systematically and economically handled. While tractors were hauling one set of trailers to the farm the other trailers could be loaded. The plan was perfectly logical and sound, but unless the equipment could be kept within the price limit stipulated the idea would be futile. However, of this Mr. Eggleston was convinced, no matter who tackled the job, the semi-trailer would eventually assert itself as the only solution to this particular problem.

But for his knowledge of the fact that the price of semi-trailers with suitable bodies purchased on the open market would bring the figures way above the amount set by Griffin, Eggleston would have ruled the job as one of simple and everyday occurrence. Notwithstanding the discouraging facts, he decided to do a little investigating, confining his activities within the $10,000 limitation. First of all he discovered that the government had distributed a number of bodies to various state highway departments, the Massachusetts department of which was willing to sell. He purchased these at a nominal figure. Then he looked around for something to put on them. In Boston he located about a dozen second-hand rear-ends that formerly did service on chain drive trucks. His final purchase was a dozen Martin Rocking Fifth Wheels. All this material was shipped to the farm, where he himself supervised the assembly of these parts.

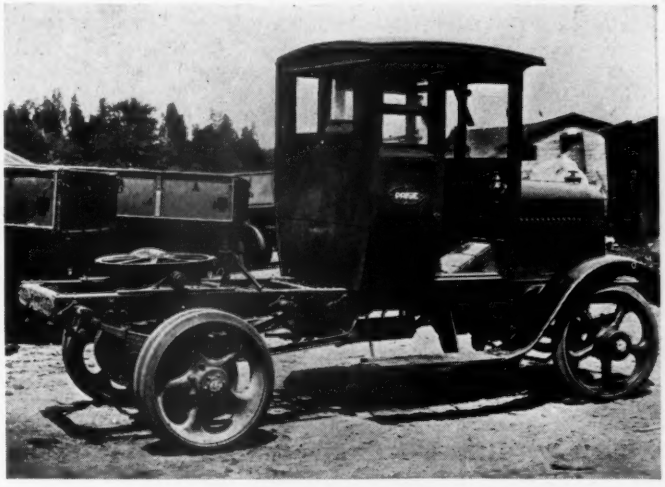
Here the jackshafts, chains, etc., were stripped from the rears and the bodies mounted on the frames. A wooden bolster was fastened to the front end of the frame to which the lower part of the fifth wheel was attached. For tractors Mr. Eggleston cut down two 2½-ton Paige trucks. In these trucks the transmissions, rear axles, etc., were moved up 31 in. and the rears of the frames cut off. Upon the rear ends of the frames the upper part of two fifth wheels were attached. Views of the finished unit are shown herewith.

Upon completing this work, Mr. Eggleston put this equipment into immediate service. The following effective system was devised.

Two trailers were assigned to each of four cities, one of which was to be loaded by the city wagons, while the other was to be hauled to the farm by the tractor. In this way no time is wasted. The tractors are kept constantly in operation.

The greatest distance the tractors and trailers have to travel is 17½ miles, and the shortest distance 3 miles.

To save time in loading the trailers in the towns concrete runways are now being constructed, so that the city garbage wagons can dump directly into the trailers, thereby eliminating the expense of shoveling. The trailers carry 7½ tons of garbage per load.



One of the Two and a Half Ton Paiges Cut Down for Tractor Requirements

The Advantages Gained

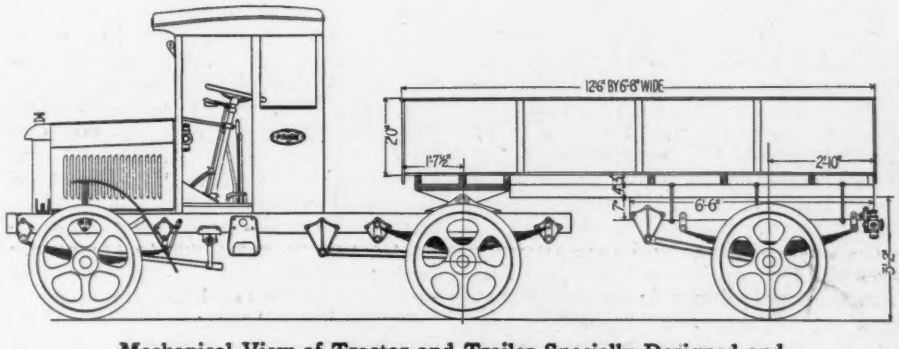
First of all, this outfit saved Mr. Griffin from being forced to give up a profitable business. In the second place, it accomplished a direct saving in money for him. He has been able to sell 14 head of horses, save the expenses of feed and dispense with the services of nine drivers, formerly employed to haul the garbage from the railroad siding to the farm.

In addition to this it has effected a material saving in the food value of the garbage. Mr. Griffin states that the food value of the garbage has increased 50 per cent now that it is delivered in a fresh condition.

An interesting point not to be overlooked is the fact that a score or more of the truck companies who figured on this proposition said that it couldn't be done by motor trucks, or anywhere near the figure allowed by Mr. Griffin.

Another point, it stands to reason that it would have been impossible for Mr. Griffin to purchase a half dozen motor trucks, of large enough tonnage to take care of his requirements, at the price mentioned. It, therefore, follows that this particular job was a trailer job without question.

Another angle we wish to emphasize is that regardless of the fact that second-hand material was used as part of the equipment the complete installation **satisfied the buyer's needs.** The story further indicates that there is a definite need on the part of the truck dealer to work in closer harmony with the trailer manufacturer. In many instances, the trailer will accomplish a saving which could not be realized with trucks alone, and for that reason the truck dealer should not hesitate to recommend a trailer and tractor outfit when the requirements warrant it. He must visualize a transportation service and not alone push sales.



Mechanical View of Tractor and Trailer Specially Designed and Built for Garbage Haulage

Recent Service Convention Resulted in a Valuable Exchange of Service-Method Ideas

The Pre-eminent Theme of Boosting Service Cropped Out in Various Forms. Is Still Being Raised to a More Equitable and Satisfactory Plane

By C. S. PERRIE

THE fifth semi-annual convention of the factory service managers, held in Detroit, on May 16 and 17, in point of attendance was about the best since the N. A. C. C. launched its service campaign on November 17, 1919, in the same city. A noteworthy feature of this convention was the number of truck factories represented, and the greater interest displayed by the truck service men in the discussions.

While the convention may be termed one of the best, the attendance was not what it should have been considering Detroit's prominence as an automobile center and when the importance of service in sales are considered. During the two days' sessions the service men came and went. Some stayed for the first day only, while others were present the second day or at either the morning or afternoon meeting. Only those coming from some distance were 100 per cent in their attendance.

Those who only partly attended the convention were principally the Detroit representatives. This brings up the thought that it is an error to hold the meetings in a large industrial center where the men can be called away easily, or else the factory service manager is so burdened with details that he cannot be spared from the factory routine for two days. It is well known that the average service manager is an extremely busy man, but if the conventions are worth while and are to produce the results expected, then the executives are not sold on their value.

What Are the Conventions Worth?

This brings up the question, "Did the service men who were absent properly present the value of these meetings to their executives?" It should not be difficult to sell the executives, for those in the industry today who do not appreciate the influence of service on sales are very few indeed. It would appear that the N. A. C. C. could go a step further in its service campaign and sell those factories whose service men are unable to do so themselves. The conventions are more than worth while. If they would accomplish no other purpose—they at least establish contact between the service men, which is extremely valuable. But they have really served to bring about an exchange of ideas, a form of clearing house where much valuable information as to handling repair problems is obtained.

The contact established by the meetings saves the factory time and money. One of the men stated that in gathering data for a new service policy he saved much time and expense, as he was welcomed at the plants and obtained data that he otherwise would not have gotten without the contact. A number of service men have been able to correspond, exchange ideas and obtain data which formerly would have been withheld.

It is believed that some factories have not sent their service heads because they labor under the impression that the passenger car influence predominates and that a truck man would receive no benefit. And there are some truck service heads who appear to share this belief. While it is true that the passenger car representatives greatly outnumber the truck yet the majority of the subjects at any convention apply equally well to truck service. Truck service differs, of course, in that it is a 100 per cent business proposition, but the fundamentals are the same. The service head of a passenger car plant can learn from the truck service manager and vice versa. They have many points in common.

Service Sells the Car—and Truck

This point was stressed in the opening address of the first day when Edward S. Jordan, president of the Jordan Motor Car Co., emphasized the point that motor highway transportation would be sold on service, and not on the initial truck cost. The last cost and fair trade-in values is what will sell motor highway transportation. The service, he said, would be based on fair parts prices, fair and uniform labor charges and honest value for labor. He called attention to evil practices resulting from the rapid development of the industry, stating that these would be neutralized by co-operative action by the manufacturer, dealer and service station. He was followed by H. H. Rice, president of the Cadillac Motor Co., who had an original thought. He said that service was by no means as bad as it was made out to be, and that in view of the vast volume of service handled it must be conceded that the service being rendered is pretty good and compares more than favorably with service in other industries.

The "pirate parts" subject was brought forth again but it appears that while the evil still exists it is not as bad as during the days when opportunity was afforded the promoter of substitute goods. It was interesting to hear the opinion of one factory man on the subject. He said that "pirate parts" was not a problem with his company, for the dealer was sold on the value of his using factory parts. His success in selling the entire dealer establishment from the proprietor to the service head, this factory man attributes to the appeal of quality articles.

The subject, "Progress of the Flat Rate System," was given more attention, and was more discussed than, perhaps, any other on the program. Many who did not appear sold at former conventions came out strongly for the plan. It developed that several companies were making an investigation with a view to adopting it and recommending their dealers do likewise.

Flat Rate Gaining in Favor

F. A. Bonham, a member of the N. A. C. C. service committee, was the leader for the flat rate system, which he said would eventually eliminate the back alley or undesirable repair shop, for they would be unable to compete with the dealer with a flat rate system. It was once more brought up that the system was not practical for a shop handling more than one make of car, to which statement a service man stated that there was a shop in the South which gave flat rates on a number of makes and was a successful shop, too.

Don Hastings, Williams & Hastings, Hupmobile distributors, Detroit, spoke of the value of proper service station equipment and personnel. His company, he explained, not only employs the flat rate but has analyzed and established the proper relation of equipment to service and its costs. Proper tools and equipment, he said, were essential and had proved a big time saver in operation work.

That service is receiving attention in the allied branches of the industry was indicated by a telegram received from a body builders' association asking for suggestions and co-operation in servicing bodies. A committee was appointed from the floor to advise them of the convention's attitude.

Among the subjects discussed in addition to those mentioned were:

Practice Regarding Parts and Labor in Connection with the Warranty, Confusion and Mistakes by Changing Parts Numbers, Methods of Educating the Dealer, What Is a Reasonable Duration for Our Guarantee Both as to Time and Mileage? What is the Best Method of Servicing Cars in Outlying Districts Where There Is No Dealer? Is 24 Hour Service Essential to Ideal Service Building? The Ideal Co-operation Between Car Sales and Service Departments, Advantage of a Fixed Service Policy for Distributors and Dealers.

The question as to a permanent meeting place was discussed. Detroit was favored for a permanent place for one meeting the year and a rotary city for the second.

The service committee comprises: L. C. Volyes, chairman, Marmon; F. A. Bonham, Durant; J. B. Bray, Grant; A. B. Cumner, Autocar; F. J. Wells, Pierce-Arrow, and H. R. Cobleigh, N. A. C. C., secretary.

Give the Motor Truck a Square Deal

Extracts From Address of J. T. W. Kastendieck, Manager Motor Truck Sales, Packard Motor Car Company, of New York

IN the opening passages of his address, J. T. W. Kastendieck reviewed some of the developments, conditions and facts that grew coincident with the motor truck since pre-war days. In drawing attention to seemingly obvious conditions, outlining their causes and drawing conclusions as to certain evil tendencies, Mr. Kastendieck impressed upon his audience the necessity of meeting these later day evil tendencies with patience, understanding and good judgment if we are to return with permanence to a sound business basis. He pointed out the proved utility of the motor truck as a result of the demands of war-time transportation needs. How truck transportation unhampered by the many petty and significant restrictions of to-day continued to forge ahead into a permanent place in the shipping facilities of our economic life until the reaction of re-adjustment, inadequate roads, damaging legislation set in. This very refreshing introduction he concluded with a suggestion for correcting these evils. Although the remedy offered is not entirely new, it is important that it be put into effect immediately. He stated that correction will require the cooperation of the public, the owner, the manufacturer and dealer, trade organizations, banking interests, transportation interests, and legislative bodies.

Entire Industry's Attitude Tested

The remainder of his address was devoted only to the attitude of the owner, the manufacturer and dealers in motor trucks, other transportation interests, and legislative bodies. Extracts from his address follow.

"The motor truck is purchased as a means of livelihood, a source of profit, or for the shipment of product by the farmer, merchant or manufacturer. Each in turn is entitled to a reasonable return on his investment, but is subject to the operation of the same economic laws as govern other operations in business. There is no separate general law applying to the profit or loss of motor truck operation.

"Economy of time does not apply to speed any more and often less than it does to the proper loading facilities, selection of adequate tonnage carrying size, attention to upkeep before major troubles force a lay-up or serious accident, and the employment of competent operators.

"Many drastic laws are written into our statute books because of the abuse of privilege, and the operation of motor trucks at high speed by reckless operators, especially when in poor condition, constitute such a menace to life and property that they are frequently the basic cause of obnoxious and sometimes unfair legislation.

"You, yourselves, are probably advocates of the elevation or depression of railroad tracks through cities and the installation of gates and warning signals at crossings. Why, therefore, should you not, in your own interest, keep your equipment in the best possible operating condition, load it to rated capacity and govern it to a rational speed limit.

"The return will be lowered cost of operation, more consistent schedule, and less reason for drastic legislation.

"The problems of the manufacturer and dealer arose and arise from varying legislation in the different states and from merchandising conditions resulting from methods of expediency resorted to at a time of stress when inventories, money market stringency and high rates excused to some extent the lapse from fundamental policies.

The address "Give the Motor Truck a Square Deal," part of which is reproduced herewith, and which was delivered before the Motor Truck Association of Philadelphia, at the last monthly meeting, touches upon a good many of the conditions which are today restricting the progress of the motor truck industry. On the other hand, it pointed the way to better business principles which are fast being acquired by the reputable manufacturers and dealers in the field.

Price Still Governs the Careless

"The buyer is warranted in seeking the best investment in the purchase of motor equipment as much as in the purchase of any other merchandise or commodity. The principle, 'Let the Buyer Beware,' is as true here, however, as in any other transaction.

"Not only may he find that the high allowance for his used vehicle was a false bargain, but that encouragement of overallowance has re-acted upon his own line of business, because no trade evil can become widespread without exerting a general influence on business morale and business morals.

"Discounts properly figured and taking into consideration total amount of purchase as related to cost of production is standard business practice,

"Discounts based on the price the buyer is willing to pay and having no regard for volume of purchase or cost is pernicious practice that if persisted in leads either to failure or if provided for in an inflated list price constitutes business gambling and not sound business practice.

"Used truck allowance has been widely heralded as an outstanding evil of the motor industry only because of its abuse. There is a market for used trucks at a right price, the price representing value in service that may still be expected from the used vehicle either 'as is,' 're-conditioned' or 'rebuilt.'

"The evil consists in over-allowances that either wipe out profit or result in an effort to secure a price exceeding value, thus what can be and has been organized into a legitimate business with an established satisfied clientele, has fallen into disrepute and auction counter tactics prevail to such a degree that the buyer approaches the purchase on the basis of bidding and with suspicion.

"The motor truck, a necessary part of our transportation trinity, deserves the observance of the best business practice in its merchandising.

"There are methods of competition that are destructive to the adversary, but remember that those methods are often self-destructive as well.

Why Permit This to Continue?

"The buyer may chuckle and feel well pleased at a high allowance for the remains of what was once dignified by the name of motor truck, but for which any self-respecting junk man would hesitate to give Fifty Dollars.

"But that buyer is already beginning to realize that somebody always pays the freight and that such practice is bound to lead to disaster, and in disaster inflated values deflate and his wonderful bargain may become an orphan without even an asylum in which to take refuge.

"It is well to talk normalcy, but it is better to act normalcy and thereby hasten the day of actual resumption and business balance.

"Reputable parts manufacturers are exercising a careful discrimination based upon experience, and the truck buyer may well exercise a like discrimination and analyze his proposition since the buyer's problem is one of ability and dependability of his truck, the service behind it and the security of his investment, and the last is not the least of these.

"True business building visualizes the future while it guards the present.

"Pernicious practices are difficult to cure. Now is the time to take the antitoxin injection and let the motor truck advance on its merit as a freight carrier.

"No American brought up to the principle of fair play wants to win a fight on a foul. It is the straight, clean knockout to the jaw that wins applause.

"The necessities of an expanding civilization, the demands of trade and commerce, the development of our natural mineral resources, the growth and concentration into great communities of one population made inadequate the existing railroad transportation, and the speeding up of industrial life required a more enduring and fast means of transport than the horse-drawn vehicle and the motor truck entered the freight transportation field.

"Store door delivery is still in the minds of the railway administrators and the development of the container system to its greatest possible utility apparently is principally dependent upon the settling of the railroad situation and financing.

"At present, however, the short haul remains the especial function of the motor truck, for not only does the motor truck move its load at less expense when cost of cartage at both ends of the line, cost of crating, and terminal charges are considered, but it does its work more directly in less time and therefore more efficiently within the radius of its best performance.

A Case of Bucking Its Own Function

"Ultimately without doubt, each transportation division, rail, water and road will determine its most profitable function as a carrier and confine its activities to that function, although the operators of each will unquestionably find constantly growing opportunities for expanding their own activities without seriously affecting the activities of the others.

"The most serious interference with progress in motor truck expansion is legislative.

"This interference is made more serious because there is, first, a lack of understanding in some quarters of the fundamental principles underlying successful motor freight transportation; second, because of highway conditions already referred to, and third, and not least, that there is an economic basis that lends plausibility to the restrictions.

"It is true that in the past motor trucks have been even grossly overloaded, dangerously overspeeded, and frequently operated with tires worn almost to the rims. These conditions, especially during the early spring months over roads not constructed to carry the traffic, have resulted in destruction, the repairing of which has been costly to the communities involved and which has caused such condemnation of truck operation on the highways that legislative bodies have readily seized upon these as reasons for increasing license fees, often exorbitantly, and decreasing tonnage carrying capacity often ridiculously.

"Granting that some beneficial results will follow the enforcement of these laws and also granting that nothing will stop the progress of motor highway transportation, much inconvenience, hardship and even injustice results from marked differences in the laws of the several states and too close adherence to the letter of the law in its enforcement.

Uniformity of Legislation Imperative

"The inconvenience of difference will finally be obviated by a uniform vehicle law toward the building up of which and the provisions of which all motor truck associations should direct active effort.

"Excessively rigid enforcement of drastic laws restricting loading are often the result of lack of knowledge of legislators and enforcement officials of conditions surrounding operation.

"Exact knowledge of load weight can only be obtained by weighing either the load or weighing and marking the packages before loading and computing the weight from the package markings. Scales are not often available and weighing packages before loading means shipping delay or increase of employes, both signifying increased cost. Increased cost being passed back to the consumer means delay in lowering the cost of living.

"Guessing at load weights means that frequently, with the best intention there is a slight excess gross weight, and in some of our states a lack of flexibility in the law enforcement subjects the owner or operator to fine and delay. Where the shipping consists of packages or cases of equal weight the shipper can easily conform to any law by regulating his body size to suit the condition, but in the hauling of mixed merchandise the problem of compliance with regulation is not so easy, therefore a reasonable judgment should be exercised by officials.

"The difficult position of law makers is easily understood. They stand between the fire of a general public opinion influenced by constantly increasing taxes, and the protests of transportation interests. It is not therefore difficult to understand that perplexity and bad judgment lead to error.

Preach Highway Transportation as an Asset

"It is up to us to preach the gospel of highway transportation, to point out to the state that motor truck hauling is an asset and not a liability. That through it food reaches the city more quickly, in better condition, and at less cost. That it solves the problem of L. C. L. shipments, and brings promptly to the isolated the comforts of the more settled communities. It keeps the boy on the farm and calls back labor to the land. It develops the idle lands of the state, thus bringing income to the state."

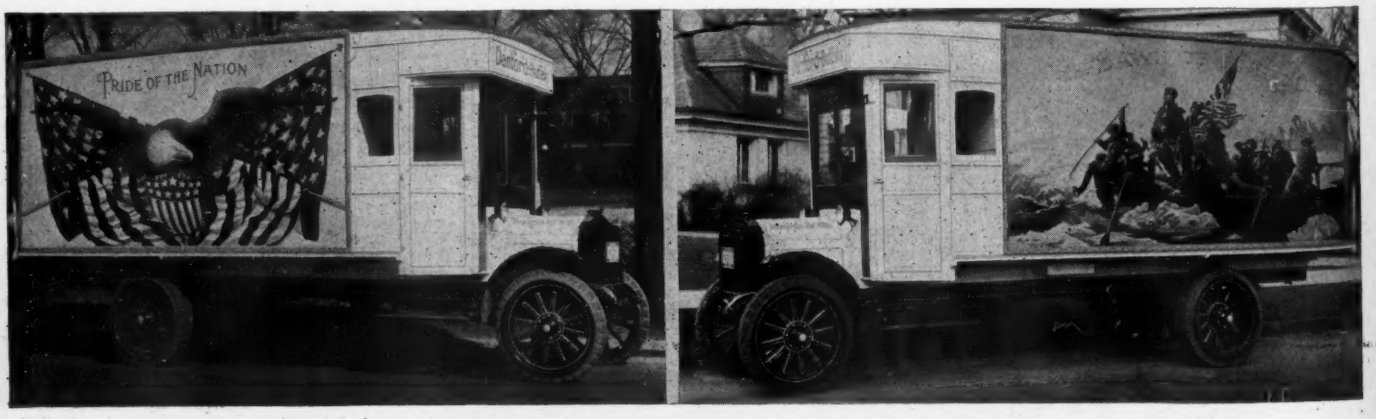
U. S. Has Motorized Schools

Sheep and poultry schools built on motor trucks and traveling through rural sections have been organized by the U. S. Dept. of Agriculture in co-operation with the State colleges of agriculture of North Carolina and Texas.

Officials of the Department of Agriculture say that more of this method of education is needed so that information on latest farming methods may be carried directly to farmers no matter how inaccessible the community may be.

Ford Offers New Discount

The Ford Motor Co. announces a new dealer's discount to all Ford dealers of 20 per cent on all trucks and passenger cars. The former discount had been 17½ per cent. The discount on tractors is now 25 per cent instead of the former discount of 17½ and 5 per cent.



Catch the Public Eye. The Public Judges the Service the Owner Renders by the Appearance of His Vehicle

This is the opinion of George G. Danford, who's been in the moving business for years. Realization of this fact is what prompted his company to adopt the above pictorial style of "attention getter" for their Federal trucks. This policy of pleasing the public taste for the beautiful proves that this kind of advertising pays, for this moving concern has the good-will and complete patronage of the entire city of Buffalo

EDITORIALS

More Facts and Less Slamming

ADVERTISING and publicity are recognized by the aggressive business organization as the most powerful factors for stimulating sales. Unless applied in a constructive manner, the results anticipated may not be forthcoming. What we refer to particularly is the tendency on the part of the newcomer in the automotive field to condemn the products of older companies. Some concerns, before they have fairly gotten under way, begin to antagonize what good-will their competitors may have had for them by misrepresenting or depreciating the latter's product in the eyes of the buyer.

Is not the competitors' good-will worth something, especially a concern breaking into a field in which it perhaps has very little experience?

If a new product has meritorious features why not present those features prominently to the attention of the customer? Of the great quantity of circulars and publicity matter which is sent out by the trade yearly, it is safe to state that 75 per cent is carelessly prepared. Usually they are "long" on knocks and "short" on information.

Furthermore, claims are made which are preposterous. This sort of publicity does more harm than good. It immediately subordinates the really meritorious features of the product in the mind of the customer; and the circular, which should have been instructive as well as a sales promoter, instead. becomes fodder for the waste paper basket.

The Unbiased Third Party

MANY truck prospects are not acquainted with the constructional features of the many makes on the market and, therefore, must rely upon the advice of friends and the selling arguments of the dealer, etc., for the selection of the right truck and its equipment. Imagine the state of mind in which the prospect will find himself after receiving suggestions from so many sources. Perhaps by the time he is through receiving such advice he is about ready to postpone his purchase until a later date. He likes such and such points of merit in this truck and something else in another. He will, when he actually gets ready to purchase, perhaps even dictate to the manufacturer that he wants this and that changed to meet the special requirements of his particular problem. If a good-sized order is in view the manufacturer will perhaps go so far as to please the customer and give him what he wants. On the contrary, the manufacturer may sell the customer equipment which is not at all what the customer should have. On the other hand, the customer may insist upon changes which the dealer or the manufacturer will make under protest, simply to please the customer.

It is in such cases as this that the dealer or manufacturer would do well to seek the counsel of a competent consulting engineer who is thoroughly acquainted with the motor truck field. He can step in and from an unbiased viewpoint analyze the problem of the buyer and make proper suggestions. The consulting engineer, acting as an intermediary between the buyer and the purchaser, can be of great assistance to the dealer or the manufacturer by preventing the buyer from making foolish requests which in no way will affect the ultimate successful operation of the trucks in actual service, and thereby incur unnecessary expense on the manufacturer's part and for which the latter probably would not be recompensed.

It must be realized, however, by the engineer who undertakes such assignments, that no favoritism can be shown either side. His work would resolve itself into analyzing the problem thoroughly, presenting the facts from all angles, and then letting the buyer draw his own conclusions. Any attempt to work into the hands of either side would nullify the results desired to be accomplished, namely, the application of the right truck and the equipment to produce the most satisfactory all-around results.

Is the Body an Afterthought?

ONE of the principal reasons why the salesman working both lines cannot sell trucks as readily as he should is that he hasn't made an effort to absorb transportation knowledge and at the same time has not familiarized himself with the different types of bodies and their uses.

The body of a truck is of just as much importance as the chassis. The salesman should be thoroughly conversant with the various bodies on the market. Bodies for the light delivery trucks come in many styles and many times the suggestion made by the salesman as to the proper body for the customer's business will help clinch a sale.

The dealer handling the light chassis will do well to impress upon his salesmen the value of knowing what's what in light truck bodies. The salesman should know what body is best suited for various commodities and he should be in a position to sell the customer on the proper combination.

News of the Trade in Brief

Comments From Truck Manufacturers on Conditions in the Industry

ALTHOUGH a glance at the production figures for the past five months should be convincing enough evidence that the motor truck industry is fast returning to normal, there are still those who doubt the numerical evidence and will remain incredulous until they have heard with their own ears from each manufacturer, the true conditions of the industry. For these people we have endeavored to secure a number of authentic statements from well known truck makers, which we think is indicative of the attitude of the whole truck field.

Truck production for April, according to the Department of Commerce, ran 21,944, as compared to 19,449 in March. Although the data for May has not as yet been assembled and the results released, it is now generally conceded that production will reach or exceed 22,000. It is hardly likely that June will fall below this figure. The percentages contained in the reports given below are reflected in the above named figures.

Running through the attitude on trade conditions of the majority of manufacturers today is a certain restraint which is introducing a stabilizing element into production and sales. There is not likely to be the over-production mistakes of the slump period; too close a tab is being kept on the demand market.

The matter of obtaining material for the increased production has again become a matter of consideration, the first time for many months. It is not thought probable that it will reach the serious state attained in boom period of 1919 and 1920.

Truck merchandising is coming more and more to be an all the year around proposition and not seasonal like the passenger car industry. The demand caused by certain spring industries such as road building and building construction are balanced by the demand in the fall by the coal operators and the agricultural interests. For this reason it is safe to assert that the demand for trucks will not drop to any appreciable extent during the fall months, provided general business conditions maintain their present status.

The following statements on manufacturing conditions may be taken as a cross section of the truck industry, as a representative group has been selected.

General Motors Truck Co., Pontiac, Mich.

"We have felt a very decided improvement in motor truck business so far this season over last and especially during the last sixty days. Our orders for the first five months of this year are 65 per cent greater than for the same period last year, and for April and May this year they are 169 per cent better than the corresponding months last year."

Denby Motor Truck Co., Detroit

"While truck sales are not enjoying the rush that passenger car sales are this spring, yet the improvement in truck buying is 50 per cent more than for the corresponding months in 1921.

"The sale of motor trucks is so closely related to general business prosperity that it is probably not to be expected that there will be a decided improvement in truck sales until business generally is better than it is at present. We are very optimistic about the future of the truck industry, however, and feel sure that it will very shortly come to its own again."

Signal Truck Corp., Detroit

"We are at present working on a production basis which we consider to be nearly normal. While it is true we are not operating as large a force as is usually used during normal periods, we are getting increased production, due to the fact that our class of labor is better and our efforts to keep production costs down, have been successful. * * * Production for the month of June will show an increase over May of approximately 225 per cent and we cannot truly say that any one particular sales district is making any greater progress than the others; in fact, we have scheduled for shipment in June, trucks to every one of our present distributors.

"Both Mr. Hoagland, president, and Mr. Sutton, manager sales and advertising, have made recent trips to Toronto, Boston, New York, Philadelphia, Pittsburgh, Chicago, St. Louis and Nashville, and have come to the conclusion that conditions in the trade are positively bettering themselves daily. They found also that most every manufacturer of trucks is putting forth every effort to secure further business and new representation, but they state it is gratifying to see that the old method of securing such business is disappearing and that a clean cut business policy is being used."

Acme Motor Truck Co., Cadillac, Mich.

"Sales for the first quarter showed a marked increase over the last quarter of 1921, and April and May have each shown an increase of the preceding month. The problem now, as it was a little over two years ago, is one of getting materials, and the indications are that the motor truck business is again coming into its own, developing gradually month by month and consequently on a substantial basis. There is a substantial basis for looking forward to marked improvement in the motor truck field. For a period of at least two years old equipment has been continued in service beyond the point of economy of operation and maintenance, which would be replaced in a period of better business conditions."

Coming Events

SHOWS

September 4 to 9, 1922, Hartford, Conn. Annual Automobile Show at the Connecticut Fair Grounds.

October 7 to 14, 1922—New York City. Electrical Exhibit at Grand Central Palace. Electric Automobiles. Norman Maul, 130 East 15th St., New York City.

November 13 to 18, 1922—Chicago. Annual Exhibit and Convention of the Automotive Equipment Association, Coliseum.

CONVENTIONS

Atlantic City, N. J., June 26 to July 1, 1922—25th Annual Meeting of American Society of Testing Materials at Chaifonte-Haddon Hall Hotel. J. K. Rittenhouse, Asst. Treas., 1315 Spruce St., Philadelphia, Pa.

Cedar Point, Ohio, August 7 to 9, 1922—20th Annual Convention, National Team & Motor Truck Owners' Assn.

Chicago, Ill., October 18 to 20, 1922—Convention of National Association Farm Equipment Manufacturers.

Colorado Springs, Colo., June 19 to 24, 1922—Summer Convention of the Automotive Equipment Association, Broadmoor Hotel. Wm. M. Webster, Comm., 1813 City Hall Sq. Bldg., Chicago.

Detroit, Mich., June 19 to 20, 1922—Summer Convention of Automobile Body Builders' Association. F. D. Mitchell, Secy., 4106 Woolworth Bldg., New York City.

Detroit, Mich., August 29, 1922—Convention of the National Safety Congress.

Olympia, Wash., July 21 to 22, 1922—Midsummer Convention of the Washington Automotive Trade Assn.

Pasadena, Calif., June 26 to 27, 1922—Sectional Meeting of the Southern Division of the California Automobile Trade Association.

Santa Barbara, Calif., October, 1922—Annual General Convention of the California Automobile Trade Assn. Robert W. Martland, Sec., Pacific Bldg., Oakland, Cal.

White Sulphur Springs, W. Va., June 20 to 24, 1922—Summer meeting of the Society of Automotive Engineers. Greenbrier and White Hotels.

FOREIGN EVENTS

Berlin, Germany, September 25 to October 3, 1922—Automobile Show at the Kaiserdamm Hall, direction German Automobile Manufacturers' Association.

Brussels, Belgium, November 10 to December 19, 1922—Automobile Show.

Buenos Aires, Argentina, November, 1922—Annual Automobile Show of the Automovil Club Argentina.

London, England, October 12 to 23, 1922—International Commercial Vehicle Exhibition at Olympia.

London, England, November 8 to 18, 1922 (tentative)—Olympia Automobile Show.

Paris, France, October 4 to 15, 1922—Annual Automobile Show at Grand Palais.

Rio de Janeiro, Brazil, September 7 to November 15—Automobile Show during International Exposition.

The Hague, Netherlands, September 15 to 20, 1922—Annual Automobile Show.

O. Armleder Co., Cincinnati

"There is today a very marked increase in the demand for motor trucks, and with continued business revival now going on, the demand for motor trucks will of course increase, and it is our prediction that within the next year business will be about normal. We believe that most of the truck manufacturers who are in business today are beginning to expand their advertising and general sales campaigns, to secure their additional prospective business. * * * We have every encouragement for increasing business and are now developing plans toward that end."

Standard Motor Truck Co., Detroit

"Orders now on hand will keep us going steadily for another month. Correspondence and information recently received from the various territories, indicate that truck sales in general are very good, with only a few territories lagging behind.

"This month's (May) production will exceed last month's by 33 1-3 per cent. With several new connections already closed and others pending, we anticipate a production increase for the balance of the season of approximately 50 per cent over April. Our location in the midst of our principal sources of supply helps us solve very nicely the incoming delivery problem. It makes us independent of the ordinary transportation delays and enables us to maintain a constant production schedule."

Noble Motor Truck Corp., Kendallville, Ind.

"Our company has experienced more truck business during the last 60 days than in the last six months of 1921. We are at this time making a drive to add to our dealer organization with a view to building up a little larger production. We anticipate that the business for 1922 will be good, that the present boom in the truck business will not continue beyond the first of September, and that after that time there will be a slump and that it will pick up again the first of the year.

"It is our belief that from this time on the truck business will be on a stable basis, that there will be less of the cut-throat method of salesmanship employed, and that by the character of the dealings, finance will be attracted to the industry. Heretofore truck business has been handled on a basis that has discouraged or rather driven from it any possible financial aid. This situation can only be corrected by stabilizing the industry and maintaining a character of dealing that is above reproach."

Traylor Engineering & Manufacturing Co., Cornwell Heights, Pa.

"We too have felt the improvement in general business conditions and in consequence thereof, have found it necessary to increase our factory force. The old Traylor dealers are increasing their orders this month (May) over the orders received during April. Judging from the inquiries we have received from prospective dealers and distributors, and the new business we are closing, we feel justified in making preparations for an exceptionally busy season."

Ward Motor Vehicle Co., Mt. Vernon, N. Y.

Sales and production in the electric vehicle field are also feeling the stimulation of better business. The Ward Motor Vehicle Co. says: "We are glad to inform you that our present sales volume since January 1, 1922, is nearly six times greater than for the corresponding period last year. During last year we delivered more trucks than during any year in our history —and we are 19 years old."

Transport Truck Co., Mt. Pleasant, Mich.

"Judging from our own experience, the motor truck business is now distinctly on the upgrade. Transport sales have picked up in the last few months in a manner surprising even to ourselves—in fact, it is all we can do to make production keep pace in spite of the fact that we are especially well prepared. With the noticeable improvement of business generally we can see no reason why truck sales should not continue in healthy volume."

Indiana Truck Corp., Marion, Ind.

E. A. Kightlinger, sales manager, has the following to say on truck conditions: "The writer has just returned from a trip to Dallas, Little Rock, St. Louis and Kansas City, and learns that sentiment and general business conditions have improved greatly in the last three months. In fact, this sentiment and favorable conditions are confirmed by interviews that he had with bankers in all of these cities, and yet not more than three months ago the same bankers were quite pessimistic in regard to immediate business, but a decided turn for the better was taken in general conditions in November and has improved wonderfully the past few months.

"We received more fleet business last month than any month this year. Six fleet orders aggregating 52 trucks were received, and our truck sales increased 40 per cent during the month of April over any month of this year's business. From closely tabulated records, we have closed 52 2-3 per cent of the prospects who made inquiry at this office in May and April. This is a very good indication that the prospect is in earnest. The most interesting thing of all is that sentiment every place and everywhere has changed.

Federal Motor Truck Co., Detroit

"March was the largest order month Federal has had in 18 months, when we shipped 196. April was still better, when we shipped 242 trucks, and May will exceed both of the previous months, as we have already shipped 230 trucks and have two more days to ship. We can safely say that May shipments will be around 300 trucks, which is getting back to within 25 per cent of normal business with us.

"We have every reason to believe that there is still a great deal of equipment to be replaced and that the summer months will see considerable motor truck selling. Our sales manager, Mr. F. L. Pierce, has made a number of trips lately and he reports that there is no reason to be pessimistic in regard to truck orders, for the next couple of months at least, and there ought to be good business this fall as well."

Pittsburgh Truck Mfg. Co., Pittsburgh, Pa.

"Our plant is now operating at full capacity and we expect to increase our production within the next couple of months. Business with us has increased about 100 per cent, and we feel that the future will be very bright and look forward to increasing our sales within the next 60 days."

Day-Elder Motors Corp., Newark, N. J.

"We have just closed May with 300 per cent increase over May of 1921. We had a 100 per cent increase in April and a 50 per cent increase in March, as compared with the same two months in 1921. We have twice as many orders on file for delivery as we delivered last year in the month of June. Comparing, however, these months with the same months of 1920, we are far below the business of the same months in 1920.

"F. G. Elder, vice-president and treasurer of the corporation, having recently returned from an extended trip, makes the following comment on conditions: 'I found all dealers very optimistic on the business situation, but at the same time, conservatively so, and all of them to the last man unwilling to do very much more than to order what they have sold. However, I feel that each day is strengthening their conviction that business is improving slowly and permanently. I really think that the hardest situation the dealer has confronting him today is the attitude of his banker, who is still skeptical on motor trucks as collateral. The bankers with whom I talked on my trip were saturated with caution.'"

The Gramm-Bernstein Motor Truck Co., Lima, Ohio

"There is no question but that business throughout the country has greatly improved and the idle trucks are beginning to be put back in service. We notice that our service departments are very busy, showing that a lot of these old trucks are being fixed up in order to get them working. It is only a matter now of time, we believe, until every one of the idle trucks are busy and then will come a breaking down of a lot of this old junk, the buying of trucks to replace them and the purchasing of a lot of new trucks, on account of the increased business. However, this will not come until about fall.

"The banking situation has become a serious one in connection with commercial car paper and that a great many banks have had their trouble with motor truck paper is due to the way the finance companies have handled the customer, who first was offered a hauling job and then sold a motor truck at full list with 24 per cent stuck on beside the interest. To begin with he never had a chance, and in the end the manufacturer got the grief because he had to overload and abuse his truck in order to fight through and keep it from being taken away from him. **These are cold facts, and we believe the future is going to clean this kind of business out and get the motor truck industry on a really honorable, high-grade basis.**

Automotive Men Active at Trade Convention

Continued lead by automotive products in exportation of manufactured goods fully justifies the interest shown in overseas trade by the large attendance at the recent Foreign Trade Convention in Philadelphia by automobile company officials, including David S. Ludlum, a member of the National Motor Truck Committee, and H. M. Robins, member of the Foreign Trade Committee of the National Automobile Chamber of Commerce.

Mr. Ludlum took active part in preparations for the event as chairman of Publicity Committee, whereas Mr. Robbins served in the capacity of Trade Adviser.

In commenting on the convention, Mr. Robins referred to "the excellent effects on the people in all sections of the U. S., who, impressed by the importance given the conventions by high executives in all industries, are gradually being converted to the truth that domestic prosperity is directly linked up with foreign trade."

"The possibilities for Americans to be assured of domestic well-being by maintaining the rank required in foreign trade during the war will be increased through our growing experience and selection of high-grade personnel as well as through standardization of export practices. Recommendations already made for uniform bill of lading, financial and insurance documents are indicative of the American mind and point to the way in which our export trade may be efficiently conducted without unnecessary waste of human energy. This conservation of work is sure ultimately to offset any adverse effect from differences in labor costs and to keep us in the front ranks of exporting nations.

"In the world's automobile trade our percentage continues to be considerably larger than that of any one or two competing nations combined. An improvement has also been noted during recent months, with prospects for future exports brightening more and more as the utility features of motor vehicles are being realized abroad."

Johns-Platt to Market Its Own Products

For many years Johns-Manville, Inc., has acted as exclusive selling agents for the various products manufactured by the Johns-Platt Co., Hartford, Conn. Owing to changing conditions in the electrical trade the above mentioned parties have mutually decided to manufacture and market their respective products separately.

When the connection was established in 1887 it was a necessary arrangement to assure a widely distributed stock of well-made electrical products. Conditions prevailing today make possible greater economy in these products through a direct sale by the manufacturer through organized distributors.

Both the Johns-Platt Co. and the Johns-Manville, Inc., feel that they can serve the trade more effectively by concentrating on their own lines. The change goes into effect June 15.

Motor Truck to Figure in the S. A. E. Technical Program

Five sessions are to comprise the technical program of the Society of Automotive Engineers' summer meeting at White Sulphur Springs, June 20 to 24. Beside the Research Session, the Fuel and Engine Session, the Passenger Car Session and the Aeronautic Session there will be a special session devoted to motor buses.

During the Research Session Dr. H. C. Dickinson will present a paper on motor-fuel volatility and highway research projects in which the Society has been participating. The paper of W. S. James, of the Bureau of Standards, will describe tests now under way as a part of the S. A. E. fuel research program.

Several papers will be presented in the Fuel and Engine Session. Thomas Midgley, Jr., whose contributions are always received with interest, will submit some data on the characteristics of blended fuels. Two papers will be contributed on the pumping of oil in engine cylinders, a current problem demanding special study. One of these will be presented by an engine designer, A. A. Bull, and the other by a lubrication engineer, G. A. Round. A paper on the present status of the hot-spot method of handling fuels of low volatility will complete the group of papers in this session. This will be presented by F. C. Mock.

The Motor Bus Session is to have two timely papers. G. A. Green, who has been identified with the motor bus ever since its introduction in New York City and elsewhere, will treat on the important factors that influence bus design and construction. R. E. Plimpton will submit data showing the unusual growth of bus transportation and compare the many types of bus chassis now produced, indicating the particular service to which each is suited.

An unusually good sports program has been arranged that will provide entertainment for all delegates and their guests. Reduced railroad fare can be obtained by members of the S. A. E. and dependent members of their families. Special tourists' fares can be obtained for guests of the Society members. Two special trains will transport the eastern and western contingents.

The N. A. C. C. Advertising Committee Appointed

Charles Clifton, president of the National Automobile Chamber of Commerce, has made appointments on the N. A. C. C. advertising committee. Those chosen are Edward S. Jordan, Jordan Motor Car Co., chairman; L. B. Dudley, Federal Motor Truck Co.; Gilbert U. Radoye, Haynes Automobile Co.; W. K. Towers, Paige-Detroit Motor Car Co.; A. B. Batterson, Buick Motor Co.; G. H. Phelps, Dodge Brothers.

The committee will act in an advisory capacity on matters pertaining to national advertising and will arrange the semi-annual meeting of advertising managers with regard to programs and discussions.

Germany Back in the Ring as Automotive Manufacturer

Automotive production in Germany is approaching the pre-war figures, according to the Automotive Division of the Department of Commerce. However, the complaint has been heard from post-war foreign buyers that the pre-war efficiency of the pre-war German car has not been maintained.

On motor trucks the report says, "The growing demand for the motor truck in Germany is the direct result of its adoption by agriculture and industry. The present registration of 30,424 is over 300 per cent increase over that of 1914. Another factor lending a stimulus to the use of the motor truck as a carrier is seen in the rapid increase of freight rates on German railways, which tend to make transportation by truck cheaper than by rail, despite the continuing price increases of motor trucks, accessories and motor fuel. German firms have been able to transport merchandise from Hamburg to Bremen by motor truck at a 10 per cent saving in cost as compared to railway transportation. In addition 3 to 4 days were saved in the loading, transit and delivery to ship's side, or to other receiver, besides the cost of transit from freight yard to ship.

The motor truck has been of great service to the "Technische Nothilfe," the well-known "Emergency Aid Service," in breaking railway strikes. During the general railway strike in February, 1922, this service ran a schedule between Berlin and Hamburg carrying mails to Hamburg and food to Berlin.

Business in motor trucks was so heavy last year that manufacturers were behind in their orders, the 1 and 2-ton trucks being the most in demand, with the 4 and 5-ton trucks second, while the 3-ton trucks were not popular at all. The inability to deliver promptly, coupled with rising prices, created a demand for used cars. Some concerns tried to renew worn-out army trucks, but met with poor success on account of the rising costs of labor.

Carter Carburetor Corporation Reorganized

Reorganization of the Carter Carburetor Co. includes the absorption of the plant at 2840 North Spring Ave., St. Louis, by the American Car & Foundry Co., and the creation of a separate selling organization called the Carter Carburetor Corp., with headquarters at the factory.

Hugh H. C. Weed, who was in charge of the old company, will also be general manager of the Carter Corp. The old executive organization is to be practically held intact.

Mr. Weed states that the company has some very substantial business on the books and that prospects are favorable for having the factory loaded to capacity before the end of the present season. Although the plant's capacity is 30,000 carburetors per month, the manufacturing resources of the American Car & Foundry Co. will permit a greater output.

Frontenac New Plant is Not Owned by Federal Truck

A rumor which is said to have appeared in the newspapers concerning the purchase of the Federal Motor plant by the Frontenac Motor Co. is branded as untrue by the Federal Motor Truck Co.

A statement issued by the truck company says: "The Federal Motor Truck Co. has never owned a factory or other property in Indianapolis. Upon investigation as to the facts behind the 'story' it has been learned that 15 or more years ago a small company in Indianapolis began the manufacture of motors. Some time during its career this firm was known as the Federal Motor Co. This company sold out to other interests in the motor industry many years ago and the effects, except the building, were moved to Toledo. The Empire Motor Co. purchased the property which was known as the 'Federal Building' from its former occupant. It is this site that has been purchased by the Frontenac Co."

Bethlehem Motors Back in Truck Field

The two founders of the Bethlehem Motors Corp., Howard B. Hall and A. T. Murray, are now back with the reorganized company and are preparing to again enter the truck manufacturing field. The old corporation was recently bought at a receiver's sale by Mr. Hall acting for a group which, besides himself, included the First National Bank of Boston and Arthur T. Murray.

It will be remembered that the Bethlehem Motors was organized in 1916 with Mr. Murray as president. Mr. Hall was one of Mr. Murray's associates and later became vice-president. About July, 1919, a syndicate of bankers purchased the corporation along with the North American Motors, of Pottstown. Both men resigned shortly after.

Officers of the new company are: A. T. Murray, chairman of board; Howard B. Hall, president; E. H. Leland, vice-president and treasurer; W. H. Rodgers, secretary and assistant treasurer. Those constituting the directorate are the above-named officers and Richard Bennett, Jr., Clifton H. Dwinell and Peter J. Brennan.

Axle Inventor Organizes New Company

A new truck axle company to be known as the Vig-Tor Axle Co., Cleveland, O., has been formed by Viggo V. Torbensen, inventor of the Torbensen axle and founder of the Torbensen Axle Co. This firm is capitalized at $500,000, which will be represented by 5000 shares of 8 per cent cumulative preferred stock of $100 par value and 15,000 shares of no par value common stock. Associated with Mr. Torbensen are A. L. Kroesen, W. N. Jackson, Carl R. Harrison, B. A. Fleming, Joseph Lyons, John A. Alburn and Lloyd W. Young.

Selden, Atlas and Others in Big Merger

A large truck merger which will involve the Selden Motor Truck Corp., the Atlas Truck Corp., and other companies engaged in the manufacture of motor trucks to be known as the Industrial Motors Corp., has been planned by directors of the various companies concerned.

On the plan, George C. Gordon, president of the Selden Truck Corp., at Rochester, N. Y., makes the following statement: "A group of New York capitalists composed of John J. Watson, Jr., chairman of the board of the Pierce Oil Co., and president of the Lee Tire & Rubber Co.; Frederick M. Small, president of Martin Parry Co., and Reeve Schley, vice-president of the Chase Bank, are very much impressed with the future of motor transportation, both gasoline and electrically prepared, and are preparing the foundation for becoming a larger and important factor in this field.

The Industrial Motors Corp. has been organized and incorporated under the laws of the state of Delaware to acquire the control of a selected number of old and reliable concerns now engaged in the manufacture of motor trucks and the major units used in the assembly thereof, and to establish throughout the country assembling plants and supply stations for the economical manufacture and distribution of motor trucks and parts, whereby purchasers may be assured of prompt and permanent service at all times at the minimum of expense.

The new corporation will have an authorized capital stock of 1,000,000 shares of no par value, all of one class. It will have power to acquire and hold the stocks, securities and properties of motor vehicle and accessory manufacturing and selling corporations, and also to sell and manufacture motor vehicles and accessories.

Dealers Please Take Notice!

In the Specification Tables in this issue we have made a slight revision in the chassis weight specification column. All manufacturers have been requested to give us the weight of the chassis on a stripped basis, that is, with seat buck and lazy back, and without such equipment which will add to the normal weight of the chassis. Henceforth this column will indicate the stripped chassis weight, so that all models listed will be figured on a uniform basis. We have found that some manufacturers have been including cabs, windshields, and complete equipment in the chassis weight while others simply gave the weight of the chassis stripped. In order to make these specifications absolutely accurate and at the same time place every manufacturer's product upon the same basis in regards to chassis weight, we have decided that the stripped chassis weight will eliminate any misunderstanding.

Furthermore we have eliminated the column showing percentage of weight on the rear wheels. In many cases manufacturers have been supplying figures which are absolutely incorrect. Some manufacturers have been guessing at the percentage figures. A few have been supplying figures based upon the weight of the empty chassis; others without load, while the majority of the manufacturers consider this column as unnecessary. Consequently it has been eliminated.

Rowe Motor Company in Big Merger

The Rowe Motor Manufacturing Co., of Lancaster, Pa., maker of worm drive trucks, which was organized some years ago by Samuel J. Rowe, has been taken over by the Rowe-Stuart Co., of Washington, D. C. The merger will become effective at once, plans for greatly enlarged producing facilities which will involve the erection of a new building at a cost of virtually $100,000, having been completed.

Besides making motor trucks, the new company will also produce tires and other devices for motor cars. The company now controls these corporations: Rowe Motor Manufacturing Co., Anderson Tire Co., Washington, D. C.; The Hydraulic Clutch Co., which will be moved from Baltimore to Lancaster, and The Hydraulic Devices Co., also of Baltimore, soon to be in Lancaster.

Officers of the Rowe-Stuart Co. are: Samuel J. Rowe, president; J. E. Farrell, Jr., vice-president; Robert L. Stuart, treasurer, and L. S. Allen, secretary.

Michigan Trade to See the "Ask 'Em to Buy" Film

Secretary H. H. Shuart, of the Michigan Automotive Trade Association, is arranging a series of meetings throughout the state at which the Automotive Equipment Association film, "Ask 'Em to Buy," will be shown and the merchandising campaign story told by good speakers. Tentative dates have already been selected in Ann Arbor, Jackson, Lansing, Kalamazoo, Grand Rapids, Muskegon, Battle Creek, Saginaw, Bay City, Flint and Port Huron, beginning June 7 and ending June 23. It is hoped to put Michigan on the map along with other states that have been covered in this manner, and show the trade how there is money to be made in selling automotive equipment.

Autocar Wins Trade-Mark Litigations

The right of the Autocar Company of Ardmore, Pa, to the exclusive use of the word "Autocar" in the manufacture and sale of motor vehicles and parts thereof has been upheld by an injunction issued for the District Court of the United States, Eastern District of Pennsylvania, against the Peters Autocar Company and De Vellier & Company, Inc., who advertised securities for sale in which they made use of the word "Autocar."

The Autocar Company has been using its designated name since its establishment in 1897.

A memorandum urging better methods of collecting statistics on motor trucks, has been referred to the board of directors of the N. A. C. C. by the motor truck committee of that organization. The compilations desired would cover distribution in counties and states and quantity reports on shipments among other figures.

Personal Items

H. M. Bacon, at one time vice-president of the McGraw Rubber Co., and more recently Cleveland representative of the Thos. Cusack Co., will do special sales work with the tire division of B. F. Goodrich Rubber Co.

Frank A. Bradley has resigned as secretary and treasurer of the Commerce Motor Car Co., Detroit, after four years' service. He is to go abroad.

Walter P. Burn, former assistant sales promotion and advertising manager of the Tide Water Oil Co., 11 Broadway, New York City, has become sales promotion and advertising manager of the Transcontinental Oil Co., Benedum-Trees Bldg., Pittsburgh, Pa., succeeding E. D. Mason.

James H. Carples, late of the Detroit Motorbus Co., has become general manager of the Strut Rod Sales Co., with offices at 7 East 42nd St., New York City.

L. H. Eby, advertising manager of the Packard Detroit branch, has resigned and will join W. R. Marvin, Pontiac, Mich. Oakland county distributor of Packard cars, G. M. C. trucks and Oldsmobiles, where he will act as general manager.

Fred Erb, of the Packard Motor Car Co., has been named president of the Detroit Foundrymen's Association, at their annual election recently.

J. E. Garlent, former Hupmobile and King factory manager, has been made works manager of the auto wheel and Gier pressed steel plants of the Motor Wheel Corp., Lansing, Mich. The combining of the works management under one head should result in greater production efficiency.

Frank Jarasch, formerly engineer of the Gurney Ball Bearing Co., Jamestown, N. Y., at one time with the Bearing Company of America, Lancaster, Pa., is importing T. H. S. Ball Bearings (Germany) and has offices at 1737 Broadway, New York City.

Thomas H. Lavier, Jr., inventor of the Lavier formula plates used in Ray storage batteries, has been re-elected president of the Ray Battery Co., of Ypsilanti, Mich. E. B. Eastburn, of the Republic Rubber Co., has been made sales manager.

Gordon Lee, chief of the Automotive Division, Department of Commerce, will tour the Pacific Coast States in July on a trade campaign to "bring the West Coast closer to Washington."

S. A. McGonigal has been elected president and managing director of the Cleveland Tractor Co., of Canada, Ltd., succeeding J. L. Hibbard, resigned. Mr. McGonigal's connection with the company includes four years of intensive work at the home office and in the field.

A. E. Mitzel has been elected president of the Canton Auto Trade Association. Other elections resulted as follows: Ralph Hay, vice-president; George Monnot, treasurer, and George B. Sweeney, secretary.

W. H. Myers, formerly of the Automotive Supply Co., Cincinnati, has joined the organization of the Stewart Iron Works, Cincinnati, O., and will have charge of the marketing of Ford accessories.

J. E. Neale, formerly of Chicago, has been appointed sales manager of the Spencer-Smith Machine Co., of Howell, Mich. He is now arranging for nation wide distribution of Spencer-Smith pistons.

R. C. Newton, formerly connected with the No-Leak-O Co., Baltimore, is now with the Inland Products Co., St. Louis, Mo., piston ring manufacturer, representing the company in Texas and Louisiana, with headquarters at Dallas.

R. A. Porter, foreman of the foundry for the Acme Motor Truck Co., proposes to build a new iron foundry at Cadillac, Mich. The plant is to be known as the Standard Foundry and Pattern Works.

William J. Shea, formerly central district manager of the Portage Rubber Co., has been appointed sales manager of the Amazon Rubber Co., Akron, O. Mr. Shea states that the prospects for Amazon are exceedingly bright and that production will be more than doubled during the present month.

H. H. Springford, assistant to the president of the Goodyear Tire & Rubber Co., has resigned to become president of the Steel & Tube Company of America, at Chicago. His successor has not been named.

R. E. Warner, well known in the automotive trade, has been announced as general sales manager of the Turner Manufacturing Co., of Kokomo, Ind., in full charge of the increasing sales of Turner products.

New Agencies

The B. F. Goodrich Rubber Co. has opened a branch distributing plant at 211 East Adams St., Springfield, Ill. E. R. Cartwright has been appointed manager.

The Western Auto Supply Co. is establishing a new branch store at Ninth and J Sts., Modesto, Calif. W. H. Bohling will manage the branch.

The Reo Motor Co. has opened a factory branch at 117 North Hazel St., Danville, Ill. S. E. Brandes, of Chicago, has been placed in charge as manager.

The Hoyt Metal Co., St. Louis, Mo., has granted exclusive sales rights for its Babbitt-lined bronze bearing and die casting departments for the state of Michigan to the Mid-Western Sales Corp., 25 Parsons St., Detroit.

J. E. French Co. will handle Dodge Brothers cars in San Francisco and Oakland, Calif., maintaining headquarters at 214 Van Ness Ave., in the former city. J. E. French, former director of distribution at the factory, heads the company.

Dodge Brothers has formed a British company to be known as Dodge Brothers, Ltd., under the managing direction of Joseph H. Willson. It is stated that similar branches may be established later in principal trade centers of the world.

The Interstate Battery Co., 148 East First South St., Salt Lake City, Utah, formerly the Interstate Tire and Battery Co., has reorganized with H. B. Lynch as manager, increased its capitalization and taken on the distribution of Gill storage batteries for the states of Utah and Southern Idaho.

Removals and Trade Changes

The American-LaFrance Fire Engine Co., Inc., has moved its New York office from 250 West 54th St., to the new Fisk Bldg., on 57th St., between Broadway and Seventh Ave., affording a floor space of 5000 sq. ft. The service station will occupy quarters at 615 West 57th St., in charge of Fred Flosdorf.

The Moss Tire and Rim Co. is moving its plant from Dennison, O., to New Philadelphia, O., and operations are to begin immediately.

The Bessemer Truck Sales Co., factory branch, is now located in its new building at 36 Sperry St., New Haven, Conn. T. T. Penrose is branch manager.

The Texas Motor Truck Equipment Co., of Dallas, has moved into larger quarters, 406 North Lamar St. The firm has secured the services of Frank A. McAllister as general sales manager.

The Atlas Battery Box Co., St. Louis, Mo., manufacturer of battery boxes, has obtained a two-story building at 1313 North Seventh St. The new location will enable the company to produce 5000 boxes daily.

The Hazlett Battery Co., formerly at 1225 W. 9th St., Cleveland, O., has leased a factory at Columbus Road and Freedman Ave., which will afford 15,000 sq. ft. of floor space. The new plant will enable the company to double its production.

The Western Vulcanizer Mfg. Co. has moved its factory from Chicago to Plymouth, Ind. The new location will afford greater manufacturing facilities. General and sales offices of the company remain at 150 North Desplaines St., Chicago.

The International Steel Products Co. has been reorganized into a new corporation under the name of the International Stamping Co., Hartford, Wis. The new firm has been refinanced and will have ample capital to take care of new business.

The McGraw Tire & Rubber Co. now has its general offices located at East Palestine, Ohio, heretofore the offices having been in Cleveland.

The Malco Products Corp. is the new name of the B. I. Malouf Co., Salt Lake City, Utah. The company states that the change in name will not involve any change in personnel nor established policy.

A. R. Mosler & Co., who have been in the receiver's hands for the past 20 months, has been taken over by a new organization of Eastern financiers and will be operated under the name of the Mosler Metal Products Corp., New York City. In addition to its line of spark plugs, the company will carry automobile accessories.

Literature

The W. F. Price Battery Supply Co., Inc., 3310 N. Broad St., Philadelphia, Pa., announces that its 138 page catalog is now ready for distribution. The book contains many charts showing the correct sizes of plates, boxes, coils on cars for the past five years, besides descriptive matter on the company's products.

The Lincoln Highway, Its Eighth Year of Progress, has just been published by the Lincoln Highway Association and is being mailed to all its members. The work is attractively done and contains much of an interesting and informative nature.

Engine-ology is a brochure on Midwest engines issued by the Midwest Engine Co., Indianapolis, which gives a detailed description of the company's product and sets forth a concise summary of the principles of an internal combustion engine.

The Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa., has published a booklet, known as Circular 1579-B, describing its Micarta gears and pinions. The publication contains general information and technical data for cutting micarta gears which should be of great interest to gear manufacturers.

The Columbia Axle Co., Cleveland, O., has issued a valuable service manual on the proper care and lubrication of Columbia axles. The company believes that the manual should help to greatly decrease the cost of the service business as a whole and the price of repair parts in particular. Distributed to manufacturers, distributors and users.

Joseph Dixon Crucible Co., Jersey City, N. J., has issued an attractive two color leaflet on automobile lubricants. The booklet will fit a regulation sized envelope. The company states that it will be glad to furnish a stock of these leaflets with a dealer's name and address upon request to dealers carrying a stock of Dixon lubricants.

NEW COMMERCIAL CARS

Master Introduces a New Passenger Coach

ALMOST recent development of Master Trucks, Inc., Chicago, Ill., is what is known as the Master Coach. This new vehicle is said to have been designed with the idea of obtaining maximum stability and safety. By underslinging the springs and by building a frame with a decided kickup in the rear, the engineers were enabled to secure a low center of gravity and permit easy entrance into the coach. The floor is only 26 in. from the ground.

The company is now in production on a model capable of carrying 22 passengers, but it is planned to furnish a similar chassis which will accommodate 26, 30 and 34 passengers. The wheelbase of the present job, Model JDB, is 170 in. The body space measures 192 in. in length; 75 in. in height; and 84 in. in width, with a frame overhang of 1 in.

The frame is constructed from ¼ in. pressed steel with all spring hangers and cross members hot riveted. The channel section, 5⅝ in. deep, with a 3¼ in. flange has six cross-members reinforced by gusset plates. In addition there are three body supporting arms on each side of the frame, extending outward to 70 in. overall and the rear cross member extending outward the same distance, forming a substantial foundation for the body.

The engine is a four-cylinder 3¼ in. x 5¼ in. Buda, with removable head, designed especially for coach service. It is equipped with magneto ignition, 6 volt electric lighting system, a 140-amp. hour battery and generator, controlled from the operator's seat. An extra large tubular core radiator with 18 in. fan and a thermostatic control system.

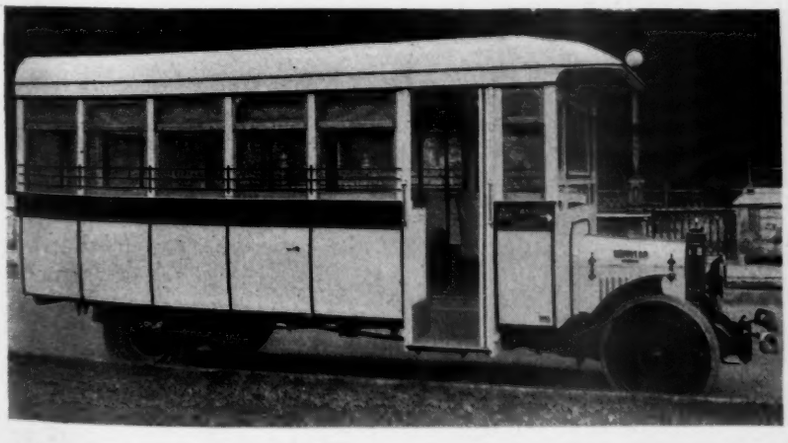
Transmission gear ratios are: Low 4:1; second 2:1; high 1:1; and reverse 3.5:1 The Walker Double Reduction Drive rear axle especially for coach work is used. Road clearance under the center of the rear axle is 12¼ in.; under the rear springs 7⅞ in.; and 6⅜ in. under the front springs. Wheels are of the cushion type, and solid tire equipped, 34 x 4 in. single front and 36 x 4 in. dual rear.

The chassis is regularly equipped with 8-in. head lamps with dimmers, tail lamp, trouble lamp, instrument board lamp, a special socket for attaching extension lamp to locate trouble in any part of the coach, motometer, and a heavy duty nickeled bumper.

Comfort has been the prime consideration in the entire designing of the body. The seats, constructed of rattan and mounted on steel pedestals, are 32 in. wide with handhold. The body is completely ceiled and white enameled. Three dome lights and fourteen "Sanitary" type strap hangers suspend from the ceiling. Metal advertising racks extend full length on both sides. The wood sash is equipped with rubber strips, safety catches and anti-rattler. Pullman style curtains are used and a buzzer and flash push button is between each window. Aisles are covered with ¼ in. plush strips. There is also an exhaust heater. Grab handles are affixed at front entrance; red and green lights are mounted on front corners of body and there is an automatic controlled entrance light. Three guard rails on outside of lower windows on each side insure arm and head protection. Three adjustable ventilators are also provided. A reflector mirror is mounted in front of operator and a partition in back of the operator's seat with spring roll up curtains protects him in daytime from talkative passengers and after dark from the interior light.

Signs reading "Safety First," "No Spitting," "Pay Enter," and "No Talking to Operator" complete the body equipment.

The Interior Shows Marked Comfort and Attractiveness in Furnishings and Design



These Two Views of the Latest Development of Master Trucks, Inc., of Chicago, Ill., Bring Out Decidedly the Features of This Job

The body is set low because of the underslung springs and the kickup of the frame in the rear. This makes for lower center of gravity. Capacity, 22 passengers

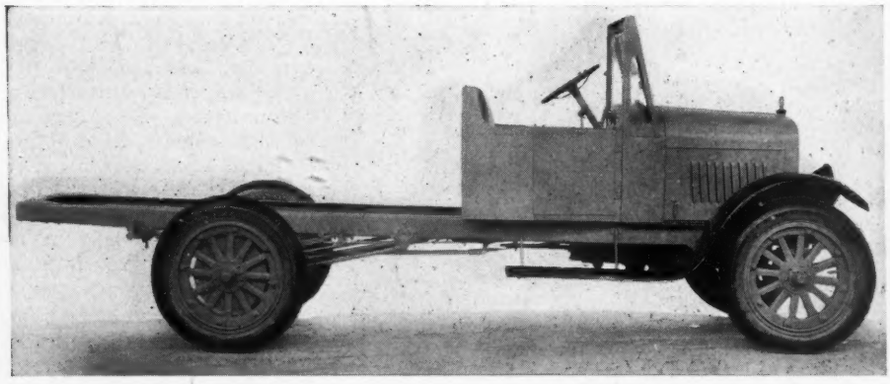
Best seasoned white oak and ash with the exception of the floor which is long leaf yellow pine is used in the body framework. The outside panels are constructed from plymetal heavily ironed throughout. Windows are double strength glass. Windshield crystal sheet glass ventilating type. The front door is controlled from the operator's seat and the emergency door at rear is locked from the inside. The chassis is sold either with or without body.

Menominee "Hurryton" Truck

THE Menominee Truck Co., Clintonville, Wis., recently placed on the market a new 3500-lb. job, rated at 35 to 38 m.p.h., and known by the trade name Hurryton. This pneumatic equipped job has a 132-in. wheelbase, 56-in. tread, a 22-ft. turning radius and a standard gear ratio of 4.58 to 1. The chassis price is $1650 f.o.b. factory.

A heavy truck type Wisconsin engine having a bore and stroke of 4 in. and 5 in., respectively, is used. The four cylinders of this engine are cast integral with the lower half of the crankcase. Lubrication is by a combination force and splash system, and cooling is by a centrifugal water pump. The S. A. E. hp. rating is 25.60; at 1400 r.p.m., 38, and 1600 r.p.m., 46.

A plain tube type carburetor with a hot air stove attachment and choker located on the instrument board is used. Fuel is fed to the carburetor from a 17-gal. tank located under the driver's seat through a Stewart vacuum tank. Ignition is by an Eisemann high tension magneto.



Side View of the New Menominee One and a Quarter Ton Job
It is pneumatic equipped, has a 132-in. wheelbase, lists at $1650 f.o.b., and is known as the Hurryton

The cooling system includes a pressed steel type radiator shell mounted on leather pads. Core is of the cellular type. A 16-in. fan further assists cooling.

From the engine power is carried through a multiple disk dry plate clutch to a selective type transmission providing three speeds forward and one reverse. The engine is mounted in unit with these two last named units. The propeller and universal joints are of Spicer make. Final drive is through a Timken spiral-bevel gear axle.

The front axle is a drop forging of conventional I-beam section, fitted with taper roller bearings. Both the emergency and service brakes are of the internal expanding type. As they both operate inside the drums they avoid interference with skid chains. Drive is left and control center. Gear shift and emergency brake levers are mounted on the transmission. Hand lever controls for both spark and throttle are provided on the steering wheel. A foot accelerator is also provided. Steering is accomplished through a Ross, having an 18-in. wheel.

Four semi-elliptic springs, 40 in. x 2¼ in. front and 50 in. x 2½ in. rear, support the pressed steel, heat-treated frame. Wheels are of S. A. E. artillery pattern and have 12 square spokes front and rear. Non-skid, 34 x 5 in. pneumatic tires are used on all four wheels.

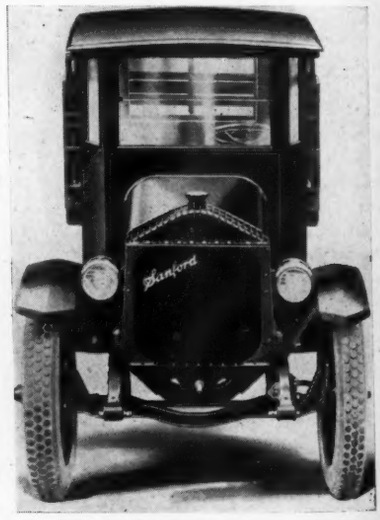
Standard equipment includes electric starting and lighting equipment, storage battery, electric headlights, cowl light, tail lamp, electric horn, jack, power tire pump, set of tools, oil can, front fenders and one-half running boards, speedometer, motometer, windshield, spare rim and seat cushions.

Sanford Offers New One and a Half Ton Job

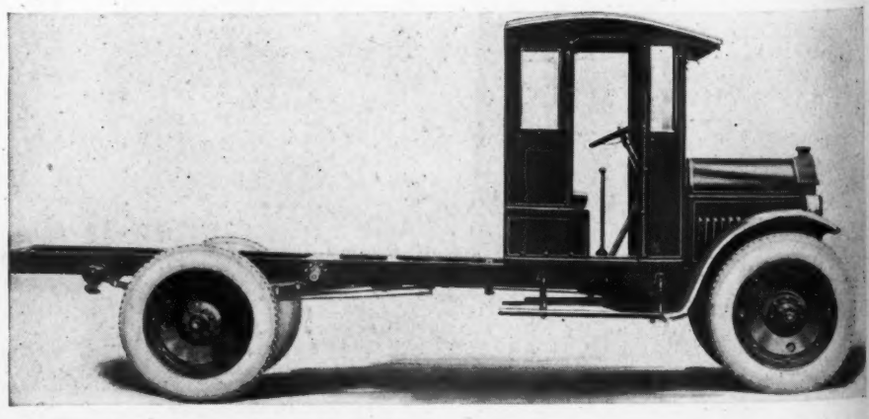
ANNOUNCEMENT was recently made by the Sanford Motor Truck Co., Syracuse, N. Y., of its latest addition, a 1½-ton job, known as model W-15 and listed at $2150. It is essentially an assembled proposition. The makers of the various units are well known in the industry. Speed is rated at 20 m.p.h. with solid tire equipment, and 30 m.p.h. with pneumatic.

The engine is a Continental, model N, having a bore and stroke of 3¾ x 5 in. Ignition is by a high tension Bosch or Eisemann magneto, and fuel is led to a non-adjustable type Zenith carburetor from an 18-gal. tank located under the seat by vacuum. The engine is mounted in unit with a Brown-Lipe multiple-disk, dry-plate clutch and a similar make gear set. The cooling system includes a cast shell radiator with core of the fin and tube type.

The propeller shaft is of the three universal type with self-aligning center bear-



Front View of the New One and a Half-Ton Sanford



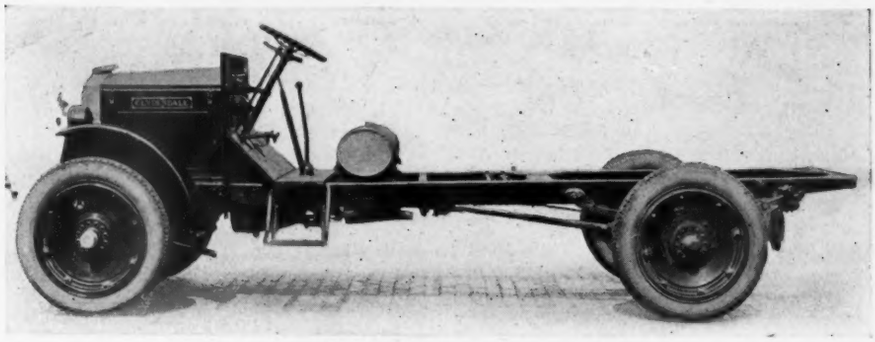
This Latest One and a Half Ton Sanford Recently Announced by Its Makers is Assembled From Well-Known Units

ings, joints and shafts made by the Spicer Mfg. Co. Final drive is through a Sheldon semi-floating, worm-drive rear axle. The front axle is also of Sheldon make.

Four semi-elliptic, silico manganese steel springs with bronze bushed eyes support the frame, which is of Parish & Bingham make. The side rails are 5½ in., $\frac{3}{16}$ in. stock. Steering is through Ross gear.

The 140-in. wheelbase job provides a loading space back of the cab of 120 in. The high pressure system of lubrication is employed throughout with the exception of the brake rod shafts and pedals.

The standard equipment includes: Front mud guards and running boards, Prest-O-Lite lamps and optional electrical equipment. The chassis can be furnished with Bosch generator, standard Prest-O-Lite battery and electric lighting if desired.



This All-Steel Truck the Latest Addition to the Clydesdale Motor Truck Company, Clyde, O., Family of Medium and Heavy-Duty Vehicles is Light and Flexible in Design

It has an overall capacity of 6850 lb., including the weight of the chassis which is 3100 lb., giving a carrying capacity of body and load of 3850 lb. The makers point out that its distinct features are quality, longer wheelbase and increased loading space. The chassis, including starting and lighting system, is listed at $1485, f.o.b. Clyde.

A New Elevating Loader for Contractors

A PORTABLE loader, which utilizes a Fordson tractor as its power plant and can be moved readily by the power of the tractor, was recently placed on the market by the Specialty Engineering Co., Allegheny & Trenton Aves., Philadelphia, Pa. This loader, known as the Specialty Fordson truck loader, is mounted on the tractor and provides a portable outfit with much greater power than the conventional stationary outfit at but slight additional cost.

This loader, in the main, consists of three parts: the supporting frame, the elevator and conveyor. The frame attaches to the tractor and supports the loader. The elevator is mounted on the rear and is set at an angle most efficient for work. The elevating equipment consists of steel buckets operated by endless chains and working on rollers. After the elevator delivers to the conveying mechanism, which extends across the top of the tractor and is of the endless apron type, the material moves forward beyond the front end of the tractor, and is dumped into trucks or wagons.

The frame includes four uprights which are attached to the tractor. The installation is simple and can be performed in a short time. The rear supporting members terminate in cast steel saddles which are strapped around the rear axles in grooves already provided. Each front member is supported by a steel plate which bolts to the side of the radiator, four small holes being drilled on each side for this purpose. This affords rigid and adequate support for the loader and makes it an integral part of the tractor.

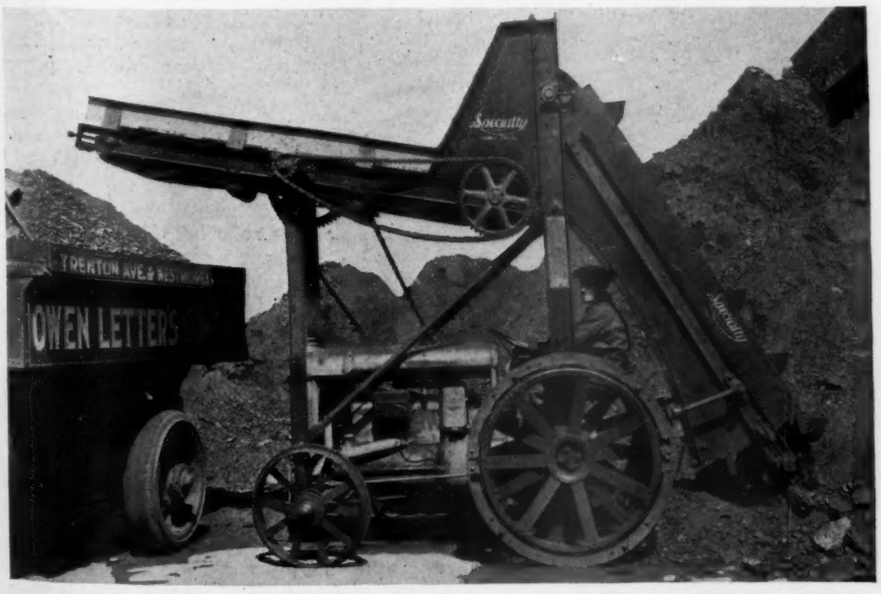
The loader is operated from the power take-off shaft of the Fordson, a sprocket wheel being attached to this shaft, which in turn drives a sprocket on the loader, chain drive being used. The power is transmitted to a countershaft which drives the conveyor and elevator. Similar loaders of the stationary type are operated by 5 hp. engines, which afford ample power. The specialty loader has been used in work too heavy for stationary types, but none of this work has required more than 10 hp. However, all the power which the Fordson engine affords for belt work is available for the operation of the loader, from which it is evident that not more than one-half the power of the engine is ordinarily required.

The loader weighs approximately 2500 lb., 80 per cent of which is carried on the rear axle. The added weight affords greater stability. The loader is provided with ample bearing surface and lubrication facilities. Flexibility of the elevating and conveying parts is stated to absorb most of vibration incident to operation.

The tractor loading outfit can be easily moved as fast as loading conditions require. It backs into the material to be loaded and the trucks hauling the material are loaded from the front of the tractor. In moving from one job to another, the elevator is raised so that it has the same clearance as the tractor. Its overall height is sufficiently low to permit it moving under viaducts, in and out of service stations, etc.

The loader can be used for any kind of loose material, such as sand, coal, gravel, earth, stone, all materials used in highway construction, etc. Manufacturers have specialized for a number of years in building, loading and conveying machinery and have a well-developed service department capable of providing satisfactory service to tractor dealers.

The Specialty Fordson truck loader has been tested in several operations and in its present design has proved satisfactory.



How the Specialty Fordson Truck Loader is Employed in a Coal Yard for Filling a Motor Truck

Overland Truck Chassis

Willys-Overland, Inc., Toledo, O., recently introduced a commercial chassis with frame bored for application of any commercial body that will fit a Ford T chassis. This new job is an adaptation of the Model 4 chassis and contains heavier capacity units to fit the needs of more severe speedy truck service. It has a heavier rear-axle and springs, and larger tires. Gas tank is mounted on brackets. This job is listed at $450 f.o.b. Toledo.

Fruehauf's Latest Replete With Features

The reversibility feature of the new Fruehauf four-wheel trailer not only gives it greater adaptability in all service but enables the saving of time in trailer and truck operation, as well. Another feature is circle-steer principle of construction incorporated in this job, which is stated to insure exact tracting of the truck at all times. The Fruehauf Trailer Co., the maker, is located in Detroit, Mich.

Briefly, this new job consists of a sturdy platform built of channel steel after the design of a motor truck frame. This platform is carried on two identical reversible gears, or trucks, each carrying their load on a dead square axle, similar to the principle employed in the construction of street cars or freight cars. This construction, it is said, is what makes possible the use of the circle-steer, which is really based on the fifth-wheel principle of construction. There has been incorporated in this construction a special designed roller bearing circle, which allows perfect ease in turning, and eliminates the possibility of the trailer "snaking" behind the truck. Another feature lies in the fact that the two gears, or trucks of the trailer, can be turned at right angles, permitting a much shorter turning radius than would be possible with any other type of construction. As trucks are identical, a simple change of locking device renders either end operative.

The frame construction is such that the thick oak flooring, which can be laid directly upon the cross members, flush with the top of the frame, is actually built into the frame. Stake pockets are riveted to the frame.

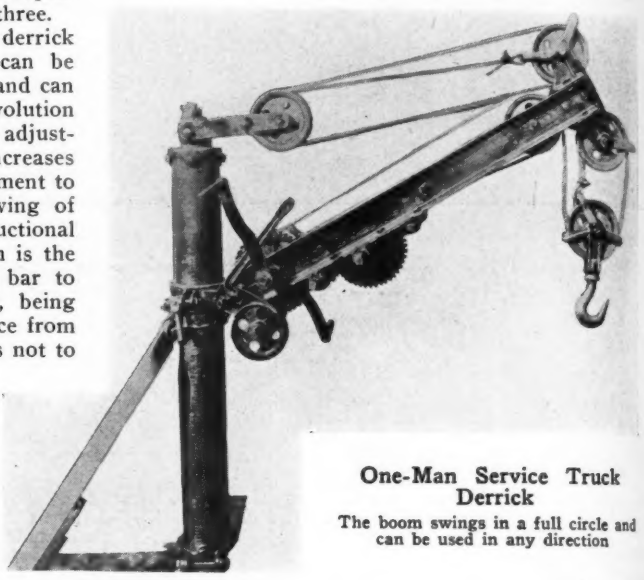
Another point of interest is the radius rod construction, which is designed to relieve the springs of all duty except that of cushioning the load, which should be their only duty. As may be observed from the accompanying illustration, the springs are placed very close to the wheels, setting from 5 to 6 in. nearer the wheels than is customary. This is claimed not only to permit the axle to carry at least 1000 lb. more, but eliminates sidesway when the trailer is traveling at speed, as well.

Sasgen's Service Truck Derrick

A derrick, which if mounted on a service truck, can be used for raising a disabled car sufficiently in front or back to permit of easy access for repairs without lying down, and which can also be used for removing engines from chassis is being manufactured by the Sasgen Derrick Co., 3101 Grand Ave., Chicago, Ill. Besides, it is pointed out but one man is necessary in the performance of a repair job instead of two or three.

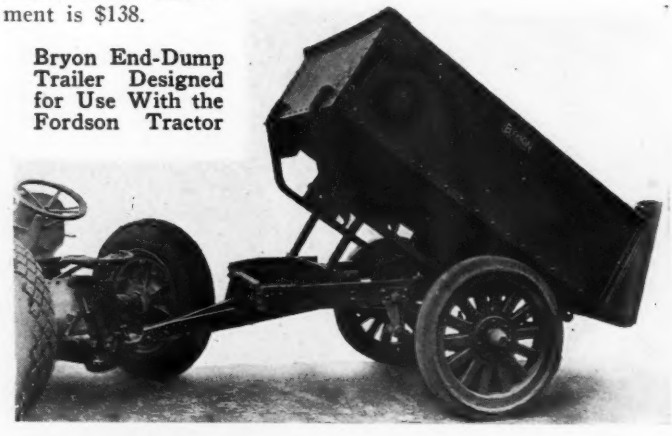
The boom of this derrick swings a full circle, can be used in any direction, and can be locked against revolution when towing. Vertical adjustment of the boom increases the scope of this equipment to include raising or towing of cars. Another constructional advantage of the boom is the fact that it acts as a bar to keep the disabled car, being towed, a proper distance from the service truck, so as not to interfere when turning corners.

Sufficient cable is furnished with the machine to reach a wrecked or tipped-over car fifty feet away. The machine fully equipped for immediate attachment is $138.



One-Man Service Truck Derrick

The boom swings in a full circle and can be used in any direction



Bryon End-Dump Trailer Designed for Use With the Fordson Tractor

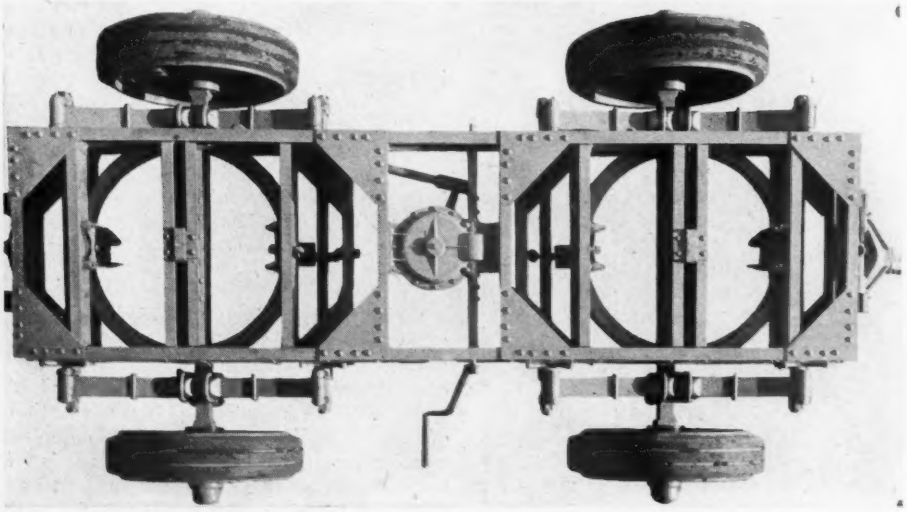
Byron Two-Wheel Automatic End Dump Trailer

The Byron Engineering Works, Louisville, Ky., recently placed on the market a 2-wheel automatic end dump trailer designed especially for use in connection with a giant tire equipped Fordson tractor. It is so designed that it carries a small portion of the load on the rear axle of the tractor. Greater tractive ability is thus afforded the rear wheels. The design of the tractor attachment is such that the tractor drawbar is relieved of weight of the trailer.

The body of this trailer operates automatically. To dump the body when loaded the operator lifts up on the locking lever, which unlocks the body from the horizontal position and allows it to roll to the dumping position, and when it has reached the proper angle it automatically unlocks the tail-gate and locks itself in that position. To return the body to its horizontal position the operator again pulls the locking lever and then by exerting a very slight weight on the front end of the body it rolls back into its loading position and automatically locks itself in that position with the lowering of the body the tailgate automatically locks itself.

Although only a 2½ yard body, water level, the body can readily carry a half-yard crown, making it 3 yard capacity, which in clay or crushed stone would equal a five-ton load. The following are a few of the specifications:

The axle is 2¾ in. square, heat-treated and is Timken roller bearing equipped. The semi-elliptic, alloy steel springs measure 40 x 3 in. The wheels, 36 x 6 in., consist of fourteen 2½-in. square spokes. Solid tire equipment, 36 x 6 in. The loading height is 6 ft. and clearance from the ground when dumped, 18 in.



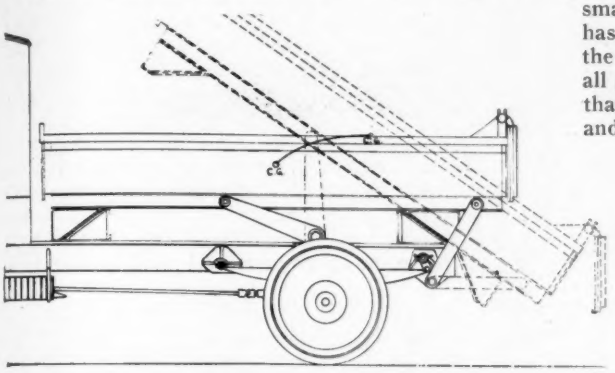
Reversibility and Circle-steer Principle of Construction Mark the Two Most Important Features of the Fruehauf's Latest

Pyramid Mechanical Hoist-Winch

A NUMBER of novel and unique features are incorporated in the Pyramid Mechanical Hoist-Winch, built by the Pyramid Engineering Corp., 226 W. Utica St., Buffalo, N. Y. In its design are included all the inherent advantages of the mechanical hoist, combined with features designed specially to insure exceptional durability and performance.

A feature in its conception lies in the method of dumping the load whereby all internal strains and stresses are very nearly eliminated. This principle will hereafter be referred to as the horizontal displacing principle.

It is a well known fact that it takes less effort to displace a load horizontally than it takes to lift it vertically. Through the employment of rock levers in the form of a kinematic link chain, the dumping is accomplished in such a manner that the center of gravity of the body describes a wide, nearly horizontal and rearward pointing arc and not an upward pointing arc.



The Body Describes a Wide, Nearly Horizontal and Rearward Pointing Arc When Dumping.

As a result, the makers claim that the effort required to dump a load is reduced to as much as 5 to 25 per cent of that present in other types of construction.

The second exclusive feature of the Pyramid Mechanical Hoist-Winch consists of a power capstan or winch, which forms an integral part of the standard equipment. The variety of uses of this feature can only be appreciated through actual use.

Next to the dumping hoists, perhaps the most important auxiliary to a motor truck is a power capstan. There is scarcely a truck that has not been at some time or other stuck in mud, and the time and labor expenditures due to kindred troubles in many instances would have justified an investment in a power capstan.

With two tackle blocks which are included in the equipment of the Pyramid Mechanical Hoist-Winch, the uses of its winch feature include combinations from pulling the truck out of tight places to lifting heavy objects several stories high, the varieties of which are only surpassed by high priced special power winches.

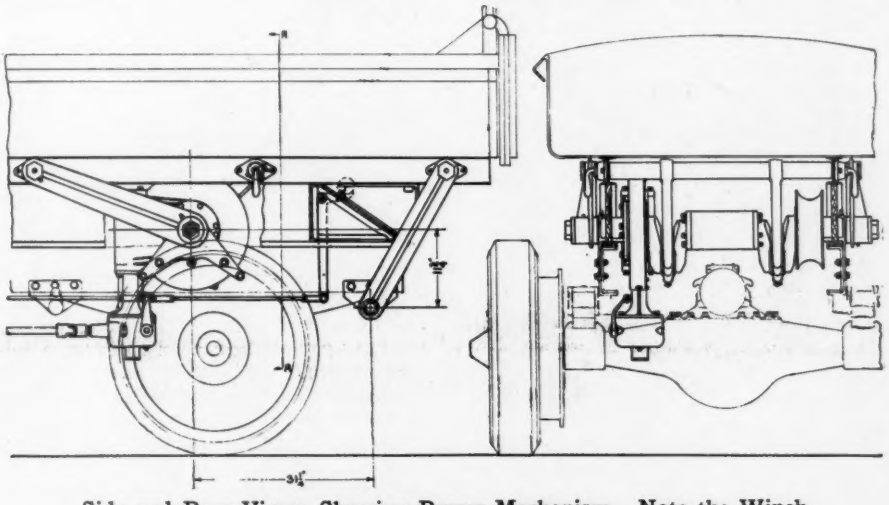
Throughout the design of the Pyramid Mechanical Hoist-Winch, from the horizontal displacing principle down to its smallest detail, greatest care has been taken to combine the three qualities essential in all good engineering creations, that is: Strength, Durability and Flexibility.

In addition to the horizontal displacing principle, the material used is worthy of note, including as it does, the vanadium alloy electric steel crankshaft, the special phosphor bronze worm gear and bearings, the nickel steel worm and Hercules steel bevel gears, the certified malleable iron housings and levers, together with the oil bath in which all gears and bearings run constantly, thus insuring long life and strength.

With the highest relative value of first cost and service as an aim, the standard Pyramid Mechanical Hoist-Winch was designed to fit almost any truck without any change in its component parts.

Another distinctive feature of the Pyramid Mechanical Hoist-Winch is the positive manner the body locks itself when in normal position. The dead center of the crank in relation to the connecting rods in this position, together with the special tongue and grooved triangular pillow blocks, prevent all possible bouncing, side or rear sway of the body, when traveling over rough roads.

In the Pyramid Mechanical Hoist-Winch, with its exceptionally fast dumping feature, even loaded to its fullest capacity, the dumping effort required is so slight that the motor can be throttled down so that it is barely turning over, a feat that conclusively demonstrates the value of the horizontal displacing principle.



Side and Rear Views, Showing Power Mechanism. Note the Winch as Illustrated in the Rear View

The Winch Which is an Integral Part of the Dumping Mechanism, Can be Employed in a Great Many Ways

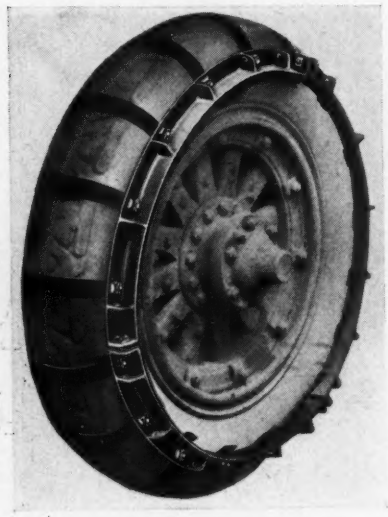
Specifications

Capacity—3 to 6 tons.
Gear Ratio—1 to 210.
Dumping Speed—10 seconds.
Weight—500 lbs.
Worm Gear—Hour glass type, special phosphor bronze.
Worm—Nickel steel.
Bevel Gears—High carbon.
Clutch—Nickel steel.
Crank—Electric vanadium steel.
Housings, Rock Levers, Brackets, Connecting Rods—Certified malleable iron.
Lubrication—All gears running in oil, also Alemite system.

TRUCK EQUIPMENT AND APPLIANCES

New Traction-Rim for Pneumatics

The latest addition to the line of traction devices put out by the Foley Traction-Rim Co., 109-111 S. Tenth St., Minneapolis, Minn., is a new type of traction-rim for use on trucks equipped with pneumatic tires. Where such trucks are compelled to negotiate through soft or sandy roads, or through fields and places where there are no roads, this device is claimed not only to increase greatly the tractive ability of the wheels but to increase the life of the tire as well. The rim also provides for quick application of non-skid chains, although these are not needed except on slippery clay. As may readily be appreciated by glancing at the accompanying illustration, the cross pieces of the rim offer protection to the tire from chain contact. Another advantage of the



Latest Foley Tractive Device for Pneumatic-Equipped Trucks

device is that it prevents chafing and tearing of the side wall of the tire.

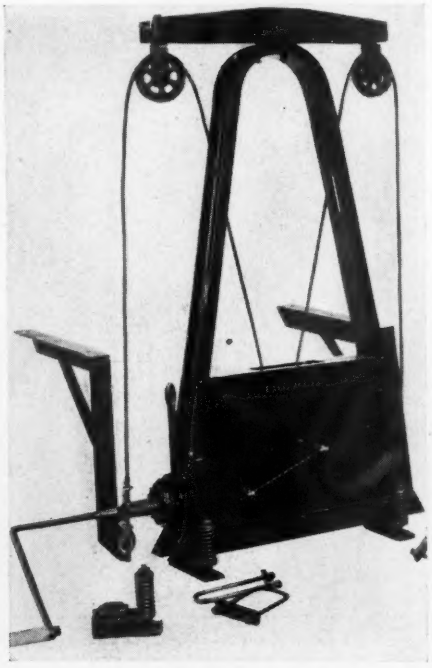
The cross pieces of this device are made of temper drawn spring steel rounded at the edges to prevent cutting. These parts are readily interchangeable and adjustable to take up wear on the tires.

This equipment is offered in sizes to conform with various sized tires, such as circumferences of 36, 38, 40, 42 and 44 in., with prices that range from $60 to $80 per set of two.

New Heil Hand Hoist

The Heil hand hoist, according to the manufacturers, the Heil Co., Milwaukee, Wis., has been designed with a view of giving the general contractor, the paver, the road builder, and the farmer a powerful dumping mechanism at a comparatively low cost. It is of special value in road maintenance work where only part of the load is dumped in one place. This performance is possible because the body can be held in any position.

This hoist, designed to lift loads up to 5 tons, is substantially constructed throughout. All parts of the working



Five-Ton Heil Hand Hoist

mechanism that are under strain are of steel casting in order to give combined lightness of weight and strength. All working parts are incased to exclude foreign matter.

A cross head is attached to the hoist frame. Cables which are fastened to a drum pass through sheaves in this cross head and are attached to the body arms that are riveted to the body. This cross head construction allows the body arms to be attached at the outside edges of the body, eliminating the problem of locating a space for them between the cross members, brake rods, muffler, etc., of the chassis.

The gear ratio is stated to be so low that but little effort is required to raise a loaded body. Only eight inches of space is required by this hoist. Dumping angles vary from 35 to 40 degrees, depending upon the length of the body. After discharge the body returns automatically to its horizontal position. The downward movement of the body can, however, be retarded by a brake located next to the handle.

This hoist can be mounted on any make of chassis as the standards that attach to the truck are adjustable. It weighs 290 lb. and is furnished ready for installing with "U" bolts. Price complete is $125.

Brite-Nite Battery

In calling the trade's attention to its product, the Advance Battery Mfg. Co., 122 S. 6th St., Louisville, Ky., the manufacturer, places particular emphasis on the fact that throughout the entire construction of the Brite-Nite battery only units of tested quality are employed.

One of the foremost features of this battery is said to be its leakproof cover. By referring to the accompanying illustration, a clear understanding may be had of certain assemblies by tracing the five designating numerals to the point indicated. No. 1 is the pillar post; No. 2 is a compression nut that screws down into cover No. 3; which is over the rubber gasket No. 4, and which has a compression of 1-16 of an inch thick. The compression nut extends up into the terminal, No. 5, or connector, leaded solid at the

Brite-Nite Battery Embodies New Constructional Features

top. This is claimed to result in an absolutely firm air-tight connection at both top and bottom, thus preventing loss of electrolyte.

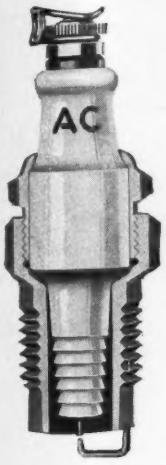
Carpenter Tire in Production

Production in the plant of a new motor truck solid tire makers, the Carpenter Tire & Truck Co., Inc., Hempstead, Long Island, is well under way. The company originally began business several years ago as distributors. Harry B. Carpenter is president and general manager of the concern. He started with the old Mack Bros. Motor Truck Co., and is said to be one of the pioneer truck salesmen of the industry. He later entered the tire field with the Republic Rubber Co.

The company is now specializing in the manufacture of Carpenter Hi-Crowns, a high profile type of solid tire.

New A. C. Spark Plug for Fords

The A. C. Spark Plug Co., Flint, Mich., formerly known as the Champion Ignition Co., recently introduced a new plug known as No. 1075, designed especially for the Ford engine. It has a removable



New A. C. No. 1075 Plug for Fords

porcelain, girdled by six knife-edge ridges, which, it is stated, attain sufficient heat to burn off soot or carbon.

The exposed end of the porcelain is short and stocky to protect it against accident, while the side electrode is rugged and shaped to form a natural oil drain The plug is assembled with only one gasket and instead of a nut a spring clip is used, which holds the regular Ford terminal securely in place. The terminal can be removed by a slight pull and also replaced as easily. An attractive metal counter display rack, and a striking poster, which illustrates the plug's merits, are supplied to dealers to stimulate sales.

Shuler Develops Motor Bus Axle

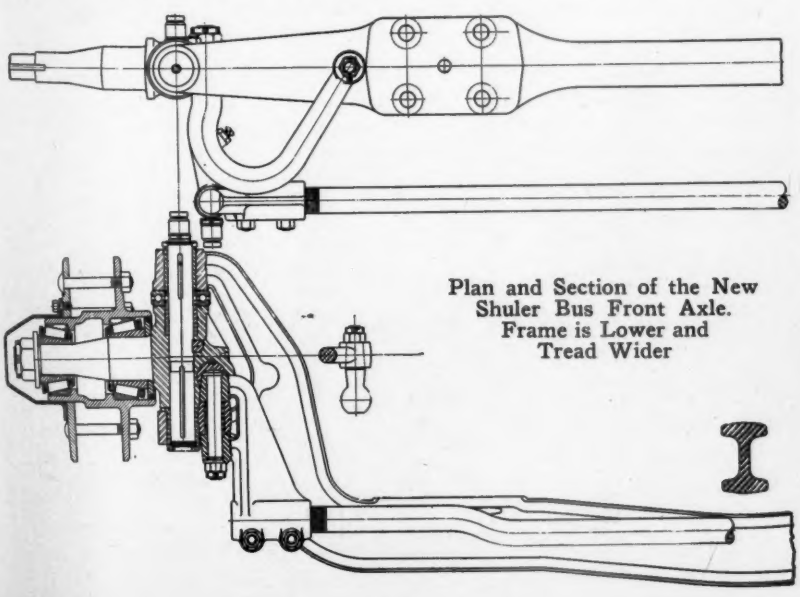
Arrangements for quantity production on a line of front axles intended exclusively for use on motor buses were recently completed by the Shuler Axle Co., Inc., Louisville, Ky. Manufacture of this new axle will be a regular part of the Shuler production program in the future. The other lines of front axles such as used for trucks, trailers and tractors will be continued and enlarged.

Progress in motor bus construction has brought about many changes in design and assembly. The front axle is among those units demanding special construction in order to meet the demands peculiar to the needs of the motor bus. The change in design most insistently demanded calls for a lower frame and wider tread, which secures greater stability and easier loading facilities.

In conformity with these needs this new axle is of extra strong and heavy design, with the spring pad full seven inches lower than the ordinary bus axle. The axle is said to have a large factor of safety and large journal surfaces to insure long wear and service under heavy duty.

The following is a brief of specifications:

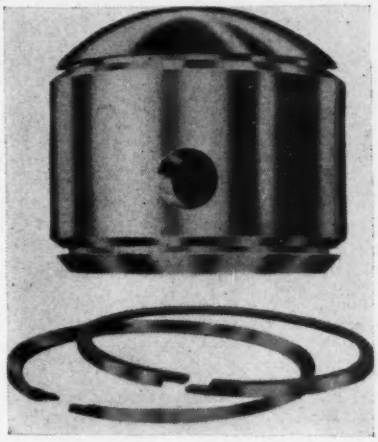
The axle center is drop-forged in a single piece from carbon steel, heat-treated. I-section is continuous throughout its entire length and the yokes are bushed with steel bushings. Steering knuckles and arms are drop-forged from nickel steel, heat-treated. The rod, which is also drop-forged, is specially designed with two clamping bosses to provide positive clamp on rod, with a deep drop to permit cross rod to pass under spring. The cross rod is of cold drawn steel and is placed on the rear of the axle. It is bent cold with large radii in the bends. The knuckle pin and steering ball are of 3¼ per cent nickel steel. Although the hubs, which are of malleable iron, are provided for wood wheels, steel wheels of the integral hub type are also available. Timken tapered roller bearings, with fine and simple adjustment on the spindle are provided. A factor of safety is provided in a locking washer, which will prevent the wheel from coming off in case of destruction to the wheel bearing. Interposed between the knuckle and upper yoke of the axle center are ball thrust bearings to absorb thrust load and insure easy steering.



Plan and Section of the New Shuler Bus Front Axle. Frame is Lower and Tread Wider

Johnston Check Valve Piston and Ring

The Johnston Piston Ring Co., 1216 E. Madison St., Seattle, Wash., is offering a piston and ring assembly that is claimed to eliminate troubles such as fuel dilution, loss of compression, etc.



Johnston Check Valve Piston and Ring

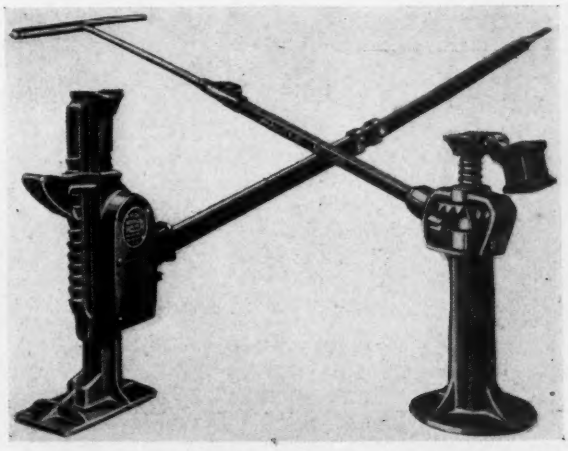
As may be observed from the accompanying illustration, this piston and ring set has a convex head and no skirt, and two beveled rings set in beveled grooves at the top and bottom. This construction is intended to result in non-dilution of the lubricating oil, increased power, lack of friction wear and excessive heat.

In manufacture the ring is rough machined and heat-treated, and then machined down accurately to size. The set includes piston, rings, pins, pin retainer and reboring gage.

Two New Walker Jacks

The accompanying illustration shows the two latest additions to the Walker Mfg. Co.'s, Racine, Wis., line of jacks. They are the Walker Badger Long Handle Jack No. 116 and the Walker Ball Bearing Jack No. 500.

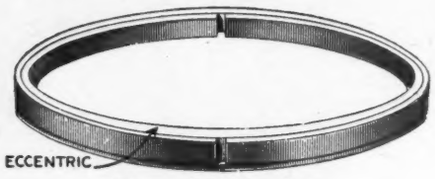
The former has a 36-in. folding handle and the No. 500 has a revolving handle of the collapsible type. The No. 116 has a height of 11 in. and raises 6 in., capacity 1 ton. The No. 500 has a height of 9 in., with a 1½-in. cap; raises 5 in.; capacity, 1 ton.



Walker Badger Long Handle Jack and Ball Bearing Jack

Eclipse Piston Ring

The Hope Machine Co., 2310 N. 2nd St., Phila., Pa., is offering a piston ring that is claimed to prevent leakage. This ring is designed with an eccentric or inner ring, and a concentric or outer ring. It is claimed to prevent leakage because the inside ring covers the outside ring and vice versa. Complete compression is held because of the even distribution of the



Eclipse Piston Ring

pressure of the eccentric ring against the concentric ring, thereby holding the latter firmly against the cylinder wall.

On account of the care taken in the casting of this ring and the accurate machining of the casting, long life and retention of ring resiliency and spring are claimed.

Schlecht Spark Plug

An important feature in the Schlecht sliding gap spark plug put out by the Schlecht Spark Plug Co., Bradentown, Fla., is the sliding disk of nickel alloy steel that jumps upward, striking the bottom of the porcelain at every explosion of the engine.

Cutaway, Showing Principle of the Sliding Gap in Schlecht Spark Plug.

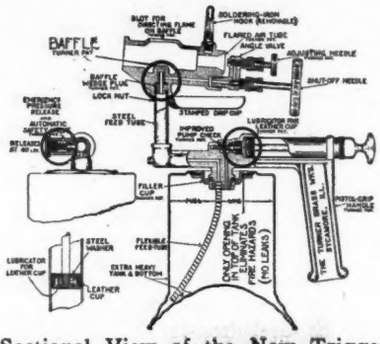
This jumping action is stated to break oil bridges, and knock the carbon off the washer simultaneously. Note the cutaway section of the illustration, and the action of the sliding disk can readily be appreciated. The spark gap takes place between the disk and the frame of the plug shell.

Improved Turner Torch

Many new improvements have been incorporated in the Turner Master line of torches manufactured by the Turner Brass Works, Sycamore, Ill. The most conspicuous departure from former design is the mounting of the complete torch mechanism at one point on the fuel container. Where formerly there were as many as four openings in the container there is now but one, thus greatly reducing the fire and explosion hazard. Moreover the opening is at the top and has but little contact with the fuel. Leakage is reduced.

Another feature incident to this assembly is the pistol grip handle which will accommodate any size hand, there being no obstructing handle brackets or supports.

As blow torches operate under a pressure of from 18 to 20 lb., the safety valve, with which this torch is provided, is set 40 lb. This valve automatically opens and closes at this pressure, making it impos-



Sectional View of the New Trigger Handled Turner Torch

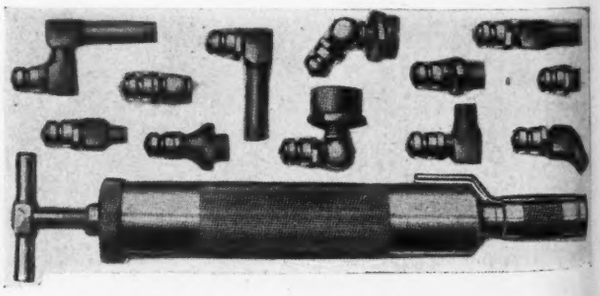
sible to develop too much pressure and burst the tank. An additional factor of safety is an air release which functions after the operator is through with the torch by releasing all pressure in the tank.

With the exception of a few additional features of refinement, this pump otherwise follows the general lines and principles of construction found in this company's other models, one of which was described in the September, 1921, issue of the COMMERCIAL CAR JOURNAL, page 47.

Jiffy Lubricating System

A quick and positive "one-hand" system of lubrication that avoids the need of manipulating the coupling end of the gun with the fingers, is being offered by the Dawson Mfg. Co., 2012 Larrabee St., Chicago. Ill.

It is connected and disconnected to and from the various parts of a truck or car with one hand, by reason of a patented groove-snap. The connecting arrangement has been designed to meet the requirements of every make chassis, in fact, they make every chassis bearing readily accessible. Only high-grade material and workmanship are said to be used in the manufacture of this product.



A Complete Set of Units Included in the Jiffy "One-Hand" Lubricating System

Detroit Piston Ring

Special methods and formula are pursued by the Detroit Piston Ring Co., Richmond Ave. at Custer St., Detroit, in the manufacture of its piston rings. Resiliency, which is claimed to be the chief characteristic of these rings, is explained as being obtained from the molecular construction of the metal. This molecular density is said to increase toward the inside of the ring.

Detroit Piston Ring

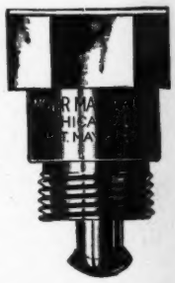
Each ring is cast in a separate mould, and the scale which is formed in cooling is never removed from the inside. The resilient features of the ring are said to be preserved throughout the entire life of the ring because of these processes in manufacture.

Each ring is enclosed in a dust and moisture proof envelope, twelve of which make up one sealed carton.

Motor Master

A device that is purposed to perform the following services—insure complete combustion, obtain more power, economize on gas consumption and minimize carbon formation—was recently introduced by the Motor Master Corp., 921 Rookery Bldg., Chicago, Ill. It is known as the Motor Master.

The device screws into the spark plug opening in the cylinder head, into which in turn spark plug is inserted. The design is based on three elements, namely: vacuum, hot spot projector and clean spark plug. At the time of the suction stroke a vacuum is formed in the primary chamber of the device, which causes a mixture to rush into the chamber, where it is converted into a high explosive gas. The projector at the base acts as a hot spot and also as a shield to prevent the entrance of excess oil, which is retarded from entering into the primary chamber and then to the firing points of the plug.



The Motor Master Saver

SERVICE AND REPAIR DEPARTMENTS

Why Truck Sales and Service Must be Handled Separately From Passenger Cars

By C. P. SHATTUCK

The Noyes-Buick Salesroom and Service Station, Hartford, Where the GMC Trucks Are Cared for by a Separate Organization Although in Same Building Where Passenger Cars Are Handled

Large plate-glass windows, boxes of sword ferns and shrubbery outside afford an attractive setting for the trucks

WHENEVER the really successful distributor or dealer merchandising both trucks and passenger cars is found, it will be noted that trucks are sold and serviced by an organization entirely separate from the passenger car. By successful dealer is meant one that has handled the same make of truck over a period of years, who has weathered the storms in the truck industry and is selling dependable, economical motor highway transportation plus satisfactory service.

Experience has taught many passenger car dealers through red ink, that formulating a sales and service policy for both trucks and passenger cars is not always successful or profitable. It is true that a large number of trucks have been disposed of by such passenger car dealers, but in too many instances coming to the attention of the writer, trucks are considered a by-product and not exceptionally profitable. The changes recorded in the CHILTON AUTOMOBILE TRADE LIST sustains this contention.

The bulk of truck sales from now on will be made by real truck dealers of whom we have too few at present but the number will be greatly increased, because the selling and servicing of trucks is getting down to a real business basis.

A. S. Hitchcock
Manager of the Noyes-Buick Co., Hartford, Conn.

The dealer of today and tomorrow will sell dependable and economical transportation and service, for the repeat buyer has bought experience and in some instances at too high a figure. He will not only investigate the product, but the dealer, his sales and service policies as well, notwithstanding the claims made to the contrary, that the buyer is interested in price only. **The final cost** is what the buyer of tomorrow will be interested in.

A big Boston passenger car distributor who is formulating his truck policies along these lines is Harry K. Noyes, head of the Noyes-Buick Co., which distributes GMC trucks and Buick cars in New England. The Noyes-Buick Co., of Hartford, Conn., is an example of two separate and distinct sales and service organizations but under one roof. Although in the same building, there is no mistaking the truck building for the passenger car structure or vice versa, despite the fact that both salesrooms are served by the same hallway and entrance.

Accompanying illustrations reveal the type of construction, also a part view of the GMC salesroom, which is noticeably

Simplicity, Ample Light and Little Furniture, Etc., to Distract the Attention of the Prospect From the Trucks, Are Features of the Showroom

The manager's office is on the landing at extreme left where he commands a view of room, service station, new truck department, etc.

different in its design from the passenger car. Whereas the latter room has an artistic staircase with an ornate clock at its head, which appears to be a hobby with Mr. Noyes, the truck salesroom has a plain staircase, simple offices and considerably more space for display purposes. Unusually large plate glass windows, free from signs, admit abundant light. Simplicity is the keynote throughout.

The floor is a surfaced cement, dark red, and its surface shines as it is kept polished. The only wall decorations consist of five framed photos of GMC trucks in service, two views of the power plant, and two panels with names of GMC owners. Attention is directed to the offices on the landing. The desk of A. S. Hitchcock, manager, who by the way entered the automotive industry about the days of the old two-cylinder air-cooled Knox car, is at the extreme left, where he commands a view of not only the salesroom but the service and new truck department. Mr. Hitchcock believes in noting what is going on, and when a person enters the door the GMC manager hustles downstairs to greet him. There is none of that private office stuff, no information desk to superciliously demand what you want, or have you an appointment? Nothing like that, for Mr. Hitchcock is always available when in the building and believes in making and maintaining contact with prospects and with new and old customers.

Avoid Waste of Time

Oh, yes, there are all kinds of solicitors in Hartford, they find their way to the GMC place, are seen and treated courteously. Perhaps it may be that a courteous policy pays, for isn't it logical to reason that good-will results? And there is no "conference" excuse given the visitor. Now I have heard some big dealers argue that if they saw all callers they would have no time to transact business. This may be true but it does not excuse the tactics indulged in by the information desk persons who probably imagine they are furthering the interests of the company by their methods. Too many dealers have the cart before the horse, assuming that the prospect's time is at their convenience, whereas as a matter of fact the seller should consider the buyer.

Knows What's Going on

Perhaps Mr. Hitchcock works longer hours than the average manager because of his seeing everyone policy (he begins at 7.30 A. M. and is the last to leave) but he knows what is going on, details which spell success or failure. Everybody works in the establishment and no dead wood is carried. There is no wasteful overhead, at least none was apparent to the writer.

Another feature which appeals to the visitor is the cleanliness of the entire building, the service station included. Aside from the section where the chassis are torn down the floors are spick and span. Cleanliness and order are hobbies with the boss, and the employes have gotten the spirit. Those using passenger cars are required to keep an oil pan under the power plant. The boss has one under his car. The entrance to the service station, at the left of the showroom, is through two large doors, the windows of which, as are all, kept washed and polished. The areaway or approach is also neatly maintained. The new trucks are neatly aligned on either side just inside the entrance. Used trucks are stored in a similar fashion.

Plenty of Daylight in Shop

The mechanics work under advantageous conditions, for there is ample daylight, as may be noted by the illustration, showing the section where disassembly is carried out. Large skylights augment the windows. With the exception of the parts room no artificial light is required even on a very dark day.

The design of the building lends itself readily to moving trucks about with a minimum of effort. There is a double door leading from the areaway of the service station to the showroom and another from the new truck department to the salesroom. There are no grades or inclines, the building being on street level.

Mr. Hitchcock and his four salesmen are engaged in merchandising motor highway transportation and service, not merely selling trucks. Sales are being based on transportation costs. Effort is made to prove to the prospect that the design of the units and components thereof makes for dependability and long life, low cost of labor for replacements because of

The New Truck Section, Also Showing the Entrance to the Service Station

A feature is the cleanliness throughout the building, the service floor being as neatly maintained as that shown

simplicity and accessibility, and adequate service facilities.

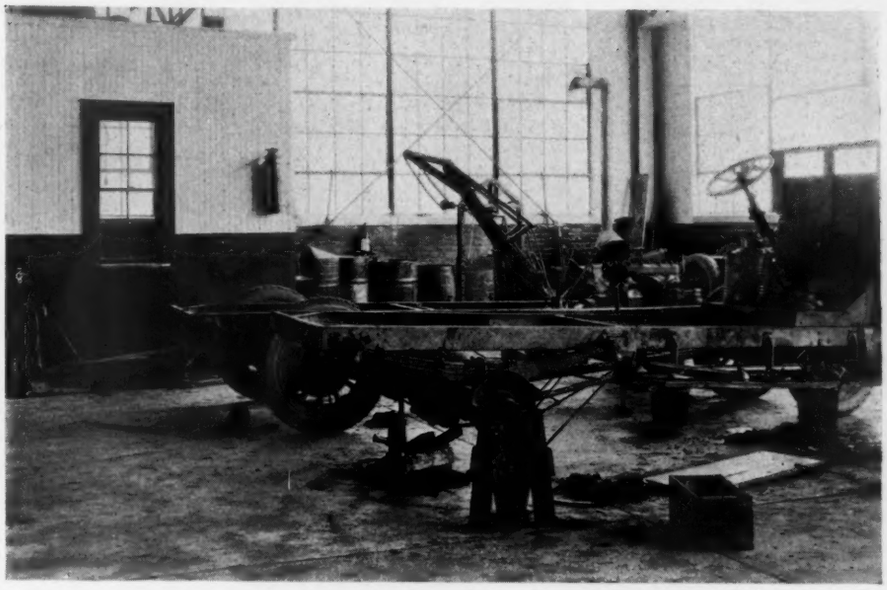
First cost, the investment, is relegated to the background **and the ultimate costs are discussed.** In other words, effort is made to convince the prospect that it is cheaper in the end, greater economy, to invest in a chassis on which the operating and maintenance costs are at a minimum. Glittering cost figures, gathered here and there, are not employed but rather those having to do with what it will cost to operate and maintain the truck over a period of years or thousands of miles.

A table in the showroom carries a number of parts including of course, the new GMC cylinder sleeve. Another factor merchandised by the GMC salesmen is the new gear ratios.

Effort is made to bring the prospect to the showroom and to have him inspect the service and parts room. Relative to the parts department it is the policy of Mr. Hitchcock to carry a small stock of every part rather than a heavy inventory of a few parts.

With the exception of one dealer the organization cares for sales and service in Hartford and Middlesex counties, or a radius of from 40 to 65 miles. Like many other dealers, Mr. Hitchcock has found that sub-dealers for trucks are wanting in certain respects, but he does not believe that they can be developed by careful selection and by living with them, figuratively speaking, until they are sold his policies for sales and service.

There is no special feature to the service. A traveling inspector is maintained and free inspection service is provided for 18 months. The service policy is simply the best possible work at the lowest prices and continuously striving to keep the customers sold on GMC trucks, the organization and its service policies.



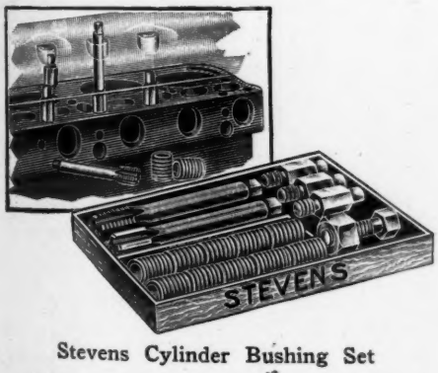
A Corner of the Service Department Where Trucks Are Disassembled

The room at left is stocked with nuts, bolts, cotter pins, etc., and separate from parts room. Part of the equipment is shown in corner including arbor press, crane, forge and anvil, electric grinder, grease pumps, etc.

Service Station and Repair Shop Appliances

The Stevens Cylinder Bushing Set

Stevens & Co., 375 Broadway, New York City, is offering a cylinder bushing set, such as illustrated, which at the same time speeds up the repair of stripped threads in a Ford cylinder block and insures a permanent and satisfactory job.



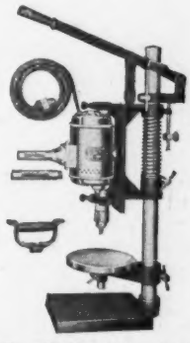
Stevens Cylinder Bushing Set

The set includes a 7-16 in. jam nut and bolt for inserting the bushings. The cylinder head is located in proper position by three threaded hexagon studs and is used as a jig to guide the reamer and tap, which prepares the hole for the bushing.

The bushings are tapered slightly to bind when flush with the cylinder head and take a standard cylinder head bolt. Prices: T-235, complete set, $3.50; T-236, bushings only, 20 in a box, $2.

Cincinnati No. O Combination Bench Drilling Stand

The Cincinnati Electrical Tool Co., Cincinnati, O., is offering a combination hand drill and sensitive bench drilling stand that will be found particularly utilitarian in shops where both bench drilling and outside drilling are to be done. This is possible because the drill can be used independently of or with the stand.

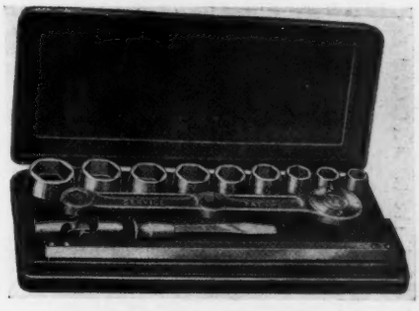


Cincinnati No. O Combination Hand Drill and Sensitive Bench Drilling Stand for Use Independently or With Stand.

The hand drill is locked or released in the bracket by two hinged caps and thumb nuts. The drill bracket, with drill, can be set at any point on the column and raised or lowered as desired. Depth of holes to be drilled is regulated by an adjustable stop at the rear of the column.

Many Combination Service Wrench Set

One hundred and eight wrench combinations are claimed possible with the Service Wrench Set, No. 1, put out by the Service Engineering Co., 568 E. First St., Boston 27, Mass. This set, consisting of only fifteen parts, is compactly made up in a durable case.



Service Wrench Set No. 1

The sockets, universal joint and ratchet wheel are made of alloy steel, heat-treated (double treatment); the ratchet pawl of high grade tool steel, heat-treated, hardened and drawn; the screw driver shank of high grade tool steel; the ratchet handle and universal joint adapter of drop-forged steel; and the extension bars, of high grade ½ in. hex. cold-drawn steel bar.

Price List of Truck Pneumatic Tire Casings, With Capacities and Inflation Pressures of Larger Sizes

	30 3½	32 4	34 4	32 4½	34 4½	33 5	34 5	35 5	36 x 6			38 x 7			40 x 8			42 x 9			44 x 10		
									Price	Carrying Capacity	Inflation Pressure	Price	Carrying Capacity	Inflation Pressure	Price	Carrying Capacity	Inflation Pressure	Price	Carrying Capacity	Inflation Pressure	Price	Carrying Capacity	Inflation Pressure
Achilles Rubber & Tire Co., Binghampton, N. Y.																							
Achilles Cord, non-skid	36.00	.....	.....	.....	.....	.....	74.25	.....	96.25	2200	90	148.00	3000	100	.....	....	...	.....	....	...	.....	....	...
Acme Rubber Mfg. Co., Trenton, N. J.																							
Acme Cord, non-skid	18.00	32.00	34.00	41.00	43.00	52.00	.....	54.00	82.00	2200	90	115.00	3000	100	.....	....	...	.....	....	...	.....	....	...
Ajax Rubber Co., Inc.. New York, N. Y.																							
Ajax Cord, non-skid	18.00	32.40	34.25	41.90	43.90	52.15	53.45	54.75	78.55	2000	90	113.85	3000	100	146.65	4000	100	.....	....	...	317.25	6000	130
Amazon Rubber Co., Akron, O.																							
Amazon Cord, non-skid	18.00	32.40	34.25	41.90	43.90	52.15	.....	54.75	78.05	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
American Rubber & Tire Co., Akron, O.																							
American Cord, non-skid	20.50	34.00	36.00	43.75	45.25	54.25	57.50	56.75	82.65	2300	90	115.40	3100	100	148.70	4100	110	.....	....	...	.....	....	...
Armstrong Rubber Co., Inc., Garfield, N. J.																							
Armstrong Super Size Cord, non-skid	18.90	34.00	36.00	44.00	46.05	54.75	55.70	57.50	86.00	2200	90	121.00	3000	100	156.00	4000	110	.....	....	...	.....	....	...
Badger Rubber Works, Milwaukee, Wis.																							
Badger Fabric, non-skid	12.90	23.50	25.50	.....	.....	.....	.....	.....	.....	....	...	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Badger Cord, non-skid	19.25	31.50	33.50	40.00	42.00	50.00	.....	52.50	.....	....	...	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Beacon Tire Co., Inc., Beacon, N. Y.																							
Beacon Rib Skid Cord (Red Seal)	18.60	32.65	34.65	39.35	42.00	51.35	.....	52.00	.....	....	..	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Blekre Tire & Rubber Co., St. Paul, Minn.																							
Blekre Cord, non-skid	.....	33.45	35.40	41.95	43.90	52.20	.....	54.70	97.50	2200	90	.....	....	...	156.75	4000	110	.....	....	...	.....	....	...
Braender Rubber & Tire Co., Rutherford, N. J.																							
Braender Bull-Dog Super, non-skid	18.00	32.40	34.25	41.90	43.90	52.15	54.10	54.75	78.55	2200	90	113.85	3000	100	146.65	4000	110	.....	....	...	.....	....	...
Brunswick-Balke-Collender Co., Chicago, Ill.																							
Brunswick Cord, non-skid	18.50	32.50	34.50	42.70	44.85	53.20	53.75	55.85	80.45	2200	90	113.85	3000	100	146.65	4000	110	198.36	5000	120	.....	....	...
Burdick Tire & Rubber Co., Noblesville, Ind.																							
Air Bag Cord, non-skid	39.50	58.75	62.25	67.25	70.50	80.00	.....	83.00	143.00	2200	90	184.00	3000	100	238.00	4000	110	.....	....	...	.....	....	...
Canton-Blackstone Co., Youngstown, O.																							
Canton Cord, non-skid	20.00	32.40	34.25	41.90	43.90	52.15	53.50	54.75	82.65	2200	90	115.45	3000	100	148.70	4000	110	.....	....	...	.....	....	...
Combination Rubber Mfg. Co., Bloomfield, N. J.																							
Combination Viking Cord, non-skid	18.00	32.40	34.25	41.90	43.90	52.15	.....	54.75	82.65	2200	90	.....	....	...	148.70	4000	110	.....	....	...	.....	....	...
Dayton Rubber Mfg. Co., Dayton, Ohio																							
Thorobred Cord, non-skid	18.95	32.75	34.95	41.75	43.75	51.75	53.50	54.50	78.95	2200	90	120.10	3000	100	155.20	4000	110	.....	....	...	.....	....	...
Empire Tire & Rubber Co., Trenton, N. J.																							
Empire Cord, non-skid	19.50	32.40	34.25	41.90	43.90	52.15	55.40	54.75	79.30	2000	90	112.20	2700	100	144.55	3650	110	.....	....	...	.....	....	...
Erie Tire & Rubber Co., Sandusky, O.																							
Erie Cord, non-skid	19.60	37.05	39.15	41.90	43.90	52.15	53.90	56.75	90.00	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Excel Rubber Co., Wadsworth, Ohio																							
Flint Cord, non-skid	24.50	46.30	48.95	52.35	56.50	65.20	.....	68.45	120.00	2200	90	170.00	3000	100	215.00	4000	110	.....	....	...	.....	....	...
Falls Rubber Co., Cuyahoga Falls, O.																							
Falls Cord, non-skid	19.50	34.00	36.50	43.25	45.75	60.00	62.50	65.00	92.00	2200	90	125.00	3000	100	160.00	4000	110	.....	....	...	.....	....	...
Federal Rubber Co. of Illinois, Cudahy, Wis.																							
Federal Cord	.....	.....	.....	43.50	46.00	54.50	56.00	57.25	80.00	....	...	115.00	....	...	150.00	....	...	.....	....	...	.....	....	...
Firestone Tire & Rubber Co., Akron, O.																							
Firestone Cord, non-skid	17.50	32.40	34.25	41.90	43.90	52.15	53.50	57.50	82.65	2200	90	115.40	3000	100	148.70	4000	110	235.00	5000	120	.....	....	...
Fisk Tire Co., Inc., Chicopee Falls, Mass.																							
Fisk Cord, non-skid	21.85	32.75	34.75	42.50	44.50	52.50	.....	55.50	.....	....	...	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Fisk Flat Tread Cord	.....	.....	.....	43.00	46.50	54.00	55.25	56.50	.....	....	...	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Chico Non-skid Cord	18.85	.....	.....	.....	.....	.....	.....	.....	.....	....	...	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Gates Rubber Co., Denver, Colo.																							
Gates Cord, non-skid	18.95	32.85	34.90	42.80	44.80	53.20	61.60	55.90	85.40	2200	90	121.20	3000	100	156.50	4000	110	.....	....	...	.....	....	...
General Tire & Rubber Co., Akron, O.																							
General Cord, non-skid	19.70	34.95	37.85	44.45	46.55	54.90	53.75	60.90	83.40	2000	90	116.30	3000	100	153.15	4000	110	239.95	5000	120	334.30	6000	130
Gillette Rubber Co., Eau Claire, Wis.																							
Gillette Cord, non-skid	18.30	32.50	34.50	42.70	44.85	53.20	.....	55.85	78.55	2200	90	113.85	3000	100	146.65	4000	110	.....	....	...	.....	....	...
Goodrich, B. F., Rubber Co., Akron, O.																							
Goodrich De Luxe Cord	.....	.....	.....	.....	.....	.....	53.50	.....	82.65	2200	90	115.45	3000	100	148.70	4000	110	.....	....	...	.....	....	...
Goodrich Silvertown Cord	18.00	32.40	34.25	41.90	43.90	52.15	.....	54.75	.....	....	...	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Goodyear Tire & Rubber Co., Akron, O.																							
Goodyear Cord, All-Weather Tread	18.00	32.40	34.25	41.90	43.90	52.15	53.50	54.75	82.65	2200	100	115.40	3000	110	148.70	4000	120	238.90	5000	130	333.90	6000	140
Goodyear Rut-Proof	.....	.....	.....	.....	.....	.....	.....	.....	86.80	2200	100	121.20	3000	110	156.10	4000	120	.....	....	...	.....	....	...
Goodyear Cross-Rib	18.00	25.45	27.35	31.45	32.15	32.95	39.10	.....	41.05	....	...	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Hewitt Rubber Co., Buffalo, N. Y.																							
Hewitt Cord, non-skid	18.75	32.40	34.25	41.90	43.90	52.15	56.00	57.50	82.65	2200	90	115.40	3000	100	.....	....	...	.....	....	...	.....	....	...

Hewitt Cord, non-skid	18.75	32.40	34.25	41.50	43.50	52.35	.....	.....	85.00	2200	90	120.00	3000	100	.....	....	...	.....	....	...	.....	....	...
Howe Rubber Corp., Inc., New Brunswick, N. J.																						
Howe Ultra Cord, non-skid	24.75	33.10	35.45	42.25	44.20	52.00	53.20	54.30	83.75	2200	90	118.90	3000	100	151.90	4000	110	.....	....	...	.....	....	...
India Tire & Rubber Co., Akron, O.																						
India Cord, non-skid	19.95	34.90	37.10	42.30	44.40	52.70	56.50	55.40	71.80	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Iowa Cord Tire Co., Inc., Des Moines, Ia.																						
Iowa Cord, non-skid	20.40	34.20	36.20	38.70	40.60	48.20	.....	50.55	90.90	2200	90	121.50	3000	100	157.50	4000	110	.....	....	...	.....	....	...
Kelly-Springfield Tire Co., New York, N. Y.																						
Kelly-Springfield Cord, Kant Slip	18.95	32.75	34.95	42.40	44.30	52.30	.....	54.40	80.00	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Kenyon Co., Inc., Brooklyn, N. Y.																						
Kenyon Cord, non-skid	17.50	31.50	33.50	38.50	41.50	52.15	.....	54.75	82.90	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Keystone Tire & Rubber Co., New York, N. Y.																						
Keystone Cord, non-skid	19.90	32.90	34.90	41.90	44.85	52.90	.....	54.75	81.30	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Kokomo Rubber Co., Kokomo, Ind.																						
Kokomo Cord, non-skid	18.00	32.40	34.25	46.10	48.30	57.35	.....	60.25	98.50	1970	90	135.05	2720	100	173.75	3595	110	.....	....	...	.....	....	...
Lee Tire & Rubber Co., New York, N. Y.																						
Lee P. P. Cord	24.75	44.25	.....	54.25	56.75	64.50	66.25	67.75	82.65	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
McClaren Rubber Co., Charlotte, N. C.																						
Autocrat Cord, non-skid	18.75	32.50	34.50	42.80	44.85	53.20	54.85	55.95	91.85	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Majestic Tire & Rubber Co., Indianapolis, Ind.																						
Majestic Cord, non-skid	26.35	37.65	39.85	42.55	44.70	53.00	.....	55.70	82.65	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Marathon Tire & Rubber Co., Cuyahoga Falls, O.																						
Marathon Cord, non-skid	19.90	32.40	34.25	41.90	43.90	52.15	.....	54.75	80.40	22.00	90	110.40	3000	100	142.20	4000	110	.....	....	...	.....	....	...
Mason Tire & Rubber Co., Kent, O.																						
Mason Cord, non-skid	18.75	31.95	33.05	40.05	42.25	50.80	52.60	52.50	103.10	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Mellinger Tire & Rubber Co., Kansas City, Mo.																						
Mellinger Cord, non-skid	19.70	34.95	37.85	44.45	46.55	54.90	.....	56.50	86.00	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Michelin Tire Co., Milltown, N. J.																						
Michelin Cord, non-skid	19.50	33.35	35.50	42.60	44.75	53.75	55.50	56.40	92.50	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Mid-Continent Tire Mfg. Co., Wichita, Kans.																						
Midco Cord, Universal	22.00	38.75	41.15	45.45	47.50	49.25	.....	59.00	78.05	2200	100	113.85	3000	110	146.65	4000	120	236.25	5000	130	330.00	6000	140
Miller Rubber Co., Akron, O.																						
Miller Cord, "Geared-to-the-Road"	19.00	32.40	34.25	41.90	46.95	52.15	53.50	57.50	87.00	2200	90	121.50	3000	100	156.50	4000	110	.....	....	...	.....	....	...
Mohawk Rubber Co., Akron, O.																						
Mohawk Cord, non-skid	26.50	34.10	36.10	44.10	46.20	55.00	56.50	59.50	75.00	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Norwalk Tire & Rubber Co., Inc., Norwalk, Conn.																						
Norwalk Cord, non-skid	.....	.....	.....	.....	.....	.....	52.55	57.20	84.75	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Oldfield Tire Co., Akron, O.																						
Oldfield Cord, anti-skid	18.45	33.20	35.00	42.95	45.00	53.45	54.80	56.10	84.95	2200	90	105.95	3000	100	149.95	4000	110	.....	....	...	.....	....	...
Pennsylvania Rubber Co., Jeannette, Pa.																						
Pennsylvania Cord, non-skid	23.75	32.50	34.50	41.90	43.95	52.20	53.95	54.80	90.90	2200	90	121.50	3000	100	157.50	4000	110	.....	....	...	.....	....	...
Perfection Tire & Rubber Co., Fort Madison, Ia.																						
Perfection Cord, non-skid	19.60	32.40	34.25	41.90	43.90	52.15	.....	54.75	.....	....	...	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Standard Fabrics	13.75	25.45	27.35	34.05	36.25	42.15	.....	44.75	95.90	2200	90	128.25	3400	100	.....	....	...	.....	....	...	.....	....	...
Powertown Tire Corp., Rochester, N. Y.																						
Powertown Cord, non-skid	23.30	39.10	41.00	49.70	53.10	61.00	62.20	63.20	85.00	2200	90	115.50	3000	100	.....	....	...	.....	....	...	.....	....	...
Quaker City Rubber Co., Philadelphia, Pa.																						
Quaker City Cord, non-skid	23.75	32.50	34.50	45.00	47.50	53.50	55.90	56.25	77.45	2200	90	112.35	3000	100	144.75	4000	110	.....	....	...	.....	....	...
Racine Rubber Co., Racine, Wis.																						
Racine Multi-Mile Cord	18.85	33.45	35.40	43.25	45.35	53.85	54.40	56.60	82.65	2200	90	115.45	3000	100	148.70	4000	110	.....	....	...	.....	....	...
Republic Rubber Co., Youngstown, O.																						
Republic Cord, non-skid	19.00	33.75	35.85	44.35	46.60	55.25	.....	58.00	85.00	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Samson Tire & Rubber Corp., Los Angeles, Calif.																						
Samson Super Size Cord, non-skid	18.90	33.90	35.85	49.40	52.60	61.50	63.80	65.70	90.90	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Sprague Tire & Rubber Co., Omaha, Neb.																						
Sprague Cord, non-skid	.....	32.50	34.50	41.90	44.30	52.15	.....	54.75	90.00	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Spreckles "Savage" Tire Co., San Diego, Cal.																						
Spreckles Savage Cord	.....	35.50	37.80	46.80	48.00	57.40	.....	60.00	85.00	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Standard Four Tire Co., Keokuk, Iowa																						
Standard Cord, non-skid	18.90	32.50	34.50	42.70	44.85	53.20	.....	55.85	82.65	2200	90	115.45	3000	100	.....	....	...	.....	....	...	.....	....	...
Standard Tire Co., Willoughby, O.																						
Tiger Foot, non-skid	18.00	32.40	34.25	41.90	43.90	52.15	.....	54.75	82.80	2200	90	115.65	3000	100	.....	....	...	.....	....	...	.....	....	...
Swinehart Tire & Rubber Co., Akron, O.																						
Swinehart Cord, non-skid	20.00	35.20	37.25	45.55	47.70	56.70	55.00	59.50	78.55	2200	90	113.85	3000	100	146.65	4000	110	.....	....	...	.....	....	...
Syracuse Rubber Co., Inc., Syracuse, N. Y.																						
Syracuse Syra-Cord, non-skid	18.30	32.50	34.50	42.45	44.0	52.85	54.00	55.50	84.30	2200	90	117.70	3000	100	.....	....	...	.....	....	...	.....	....	...
Thermoid Rubber Co., Trenton, N. J.																						
Thermoid cord, non-skid	.....	33.05	34.95	42.75	44.80	53.20	54.60	55.80	83.60	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Traveler Rub. Co. of Bethlehem, Bethlehem, Pa.																						
Traveller Cord, non-skid	19.60	32.40	34.25	41.90	43.90	52.15	.....	54.75	78.55	2200	90	113.85	3000	100	146.65	4000	110	.....	....	...	.....	....	...
United States Tire Co., New York, N. Y.																						
United States Cord, non-skid	.....	.....	.....	.....	47.25	.....	54.10	58.90	82.65	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Victor Rubber Co., Springfield, Ohio.																						
Victor Cord, non-skid	19.00	34.10	36.05	41.90	43.90	52.15	53.50	54.75														

How Tommy Williams Boosted Service

Getting the Customer to Bring His Truck Into the Service Station Was His Hardest Job. After That He Sold Them the Necessary Repairs on a Flat Rate Basis

By C. P. SHATTUCK

J. G. WILKINS, head of the Pawtucket Motor Truck Co., just returned from his annual sojourn at Palm Beach, brown as a berry and brimming over with "pep." It did not take him long to run over the reports for the past month. All were fairly satisfactory except that of the service department. Things appeared rather slack here, so J. G. decided to investigate. He was just reaching for the house 'phone when the door opened and Cal Emmett, traveling representative for the Yearrich Tire Co., breezed in. He was greeted heartily by J. G.

As usual Emmett was full of shop talk and plumb optimistic. When questioned about the tire business the Yearrich salesman replied that it was booming.

"Time it was," he said, "they were all but riding on the rims. Greatest year ever for Yearrich," and he began his usual boost but was cut short by Wilkins, who inquired after Tommy Williams, his former star salesman, but now handling Providence trucks.

"Haven't heard much from Tommy," said J. G. "Wrote him a couple of times during the winter and tried to get him to run down South with me, but he replied he was too darned busy side stepping the sheriff. Sent him a postal from the beach which he acknowledged and said he hoped I'd enjoy myself, but nothing about his business. Seen him lately, Cal? How is he? How is he getting along?" J. G. was concerned, for he took more than ordinary interest in Tommy.

Never-Quit Type

"To be perfectly frank," replied the Yearrich man, "I am worried over Tommy. You know things have been slow with the farmers and Tommy's best bet is the man with the hoe. He's been working like the devil all winter, nights and Sundays thrown in. I guess he's had some time making both ends meet. And then he's had a family trouble and—"

"Why in blazes didn't he let me know," exploded J. G. "Why didn't someone advise me? Haven't I any friends, what?"

"Well you know Tommy, he wouldn't stand for anyone butting in. He's strong for paddling his own canoe. But, say, why don't you run up some time and see the kid? It would tickle Tommy to death."

"By George, I will, and right now," and J. G. rang for Jimmy, his chauffeur.

The run to Tommy's place was quickly made. Tommy was glad to see Wilkins and said so.

Seated in Tommy's office, J. G., with his characteristic getting down to brass tacks diplomatically hinted that while business had been none too good he guessed a friend was a friend and could he be of any aid?

"Why doggone it, J. G.," he said smilingly, "that's the nicest thing I have had said to me, with one exception, this last four months. I sure do appreciate your offer, but how come you thought I was in Dutch?"

"Why—er—I—er," floundered J. G., sending an S. O. S. glance to Cal Emmett, but the tire man's face was blank.

"Oh, confound it all, Tommy, I just got back and heard they were kind of crowding you up here and so I thought I would run up."

Tommy put out his hand which J. G. grasped—a grip that was more eloquent than a volume of words. J. G. perked up amazingly. But he glared at Cal Emmett as much as to say, "Wait until I get you alone." The tire man grinned. He had accomplished his purpose, that of bringing J. G. and Tommy together.

Service Department Received a Kick

In reply to J. G.'s question as to how he had wintered, Tommy said that trucks had moved slowly. The farmers had been hard hit by low prices for their products and high prices for necessities. But things were on the mend and the outlook good. "Kept me some busy meeting my overhead," said Tommy, "but I broke even. The service saved the day for me, at that. Up here you know, the farmers do not use their trucks much in cold weather and when they aren't using them they can't see any spending on them either.

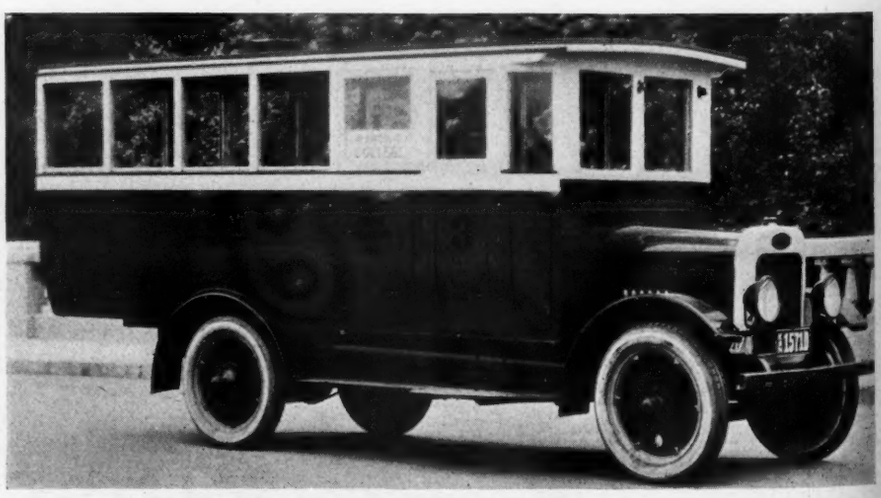
"It was Billy Stebbins, my service head, who did the trick. With work slack it looked like laying off a bunch of men, so Billy suggested a plan to keep the shop busy, and at the same time get the farmers into our shop. Together we worked up a plan. We first made a list of all prospects, using the inspection reports, and wrote a letter offering to wash out the radiators and cooling system, tighten up all nuts and bolts, clean and adjust carburetor, and magneto or ignition system, clean and adjust plugs and generally tune up the engine. This offer was made free, provided the trucks were brought to the service station. We sent them a reply postal and the customer was asked to specify about what time he could bring in his truck. In the letter we pointed out the reasons why he ought to have the adjustments made, and also that there wasn't any string on this offer.

Down to a Strict Basis

"We got a goodly number of replies, and Billy called on those that did not respond, explaining the idea on a service and cost-to-you basis. Then we made up a list for taking so many in at a time and scheduled the work on a production basis just as they do it at a factory. It worked out fine."

"But," remarked J. G., "that was all going out and nothing coming in. I fail to see where you met any overhead with such a plan."

Tommy smiled. "No, there wasn't any money in this work, but the cost per truck was very low. But that offer was merely a bait to get them in and break the ice.



One of the Buses Used by the Salina Street Railway Company

The traction company of Salina, Kansas, in order to provide its patrons with maximum service recently established two auxiliary bus lines to co-operate with the regular street system. The units are one-ton Gramm Pioneer models with special bodies, one of which has traveled 40,000 miles since July. These buses seat twenty passengers, are exhaust heated and electrically equipped.

Now, when a truck came in this work was done but **Billy went over every truck, listing what work should be done.** Then he got up a flat rate for simple operations. For example: Many used an anti-freezing solution that rotted the inlet and outlet water hose. Billy devised a tool having four flat blades that made slipping on the hose a cinch. Saved lots of time. A small price was made for that job. Carbon was removed, valves ground and adjusted for another low price, a price sufficient to cover the overhead. We used a carbon burning outfit and for the valves we have a real electric machine that has cut costs down and built profits up. We also empty the crankcase, clean it, and renew the oil at the cost of the oil, but the price gives us a slight profit on oil."

"I still fail to see where you got off at that," once more broke in J. G. "Well," said Tommy, "we didn't, much, but what Billy did was to find real work to be done and then sold it. We both knew that any talk of overhauls, repair bills, would be negatived by the farmers, so we offered to do all the work and date the bills six months ahead, taking a note without interest for the amount. And long time payments is ace high around here. I sold the plan to the bank and got its approval, and there you are."

"A bright idea," said J. G., "but is the paper good?"

"About 100 per cent," was the reply.

"Well," remarked J. G., "I'd hate to try that plan in some cities I know of."

By this time it was noon and J. G. suggested lunch, but Tommy said it was all set. The wife expected them for lunch at one o'clock. J. G. became uneasy. He remembered that Cal had said something about family trouble. Cal promptly voiced his approval of the lunch, but J. G. was puzzled. He looked to the tire man, but the latter's face was as void of expression as a Chinese.

Mrs. Williams met them at the door and greeted J. G. and Cal warmly. J. G. watched Tommy and his wife closely. If he ever saw a happy couple here was one. He was wondering what in blazes Cal meant by family trouble. Just as lunch was announced however the answer was provided. A lusty wail from the upper rooms was heard and Mrs. Williams and Tommy excused themselves and hurriedly left the room. Cal Emmett was grinning. "That," he said, "pointing upward with his thumb," is the family trouble. "Tommy's got a boy. I'll say that's some trouble. Cal was a bachelor and not fond of the double harness or children.

What J. G. said to Cal wasn't polite or printable. J. G. just couldn't wait to be invited to see the youngster, so he hustled upstairs where he found the couple cooing and chuckling to a bouncing baby boy. Downstairs the soup got cold and Cal Emmett peevish before the trio returned. But what's a cold lunch compared to a new king in a household?

On the way back J. G. raved over the youngster and made all kinds of plans for his future. Cal in vain tried to steer the conversation in other channels without success. J. G. was not to be side-tracked. When the car reached the Pawtucket Motor Truck Co.'s office, Jimmy was on the job to open the door. "A great youngster. A fine boy," exclaimed J. G., "but holy mackerel, I forgot to ask what they have named him! What's it going to be, Cal?" Cal didn't know. But Jimmy stepped into the breach. "They have named him J. G. Wilkins Williams, sir," he said.

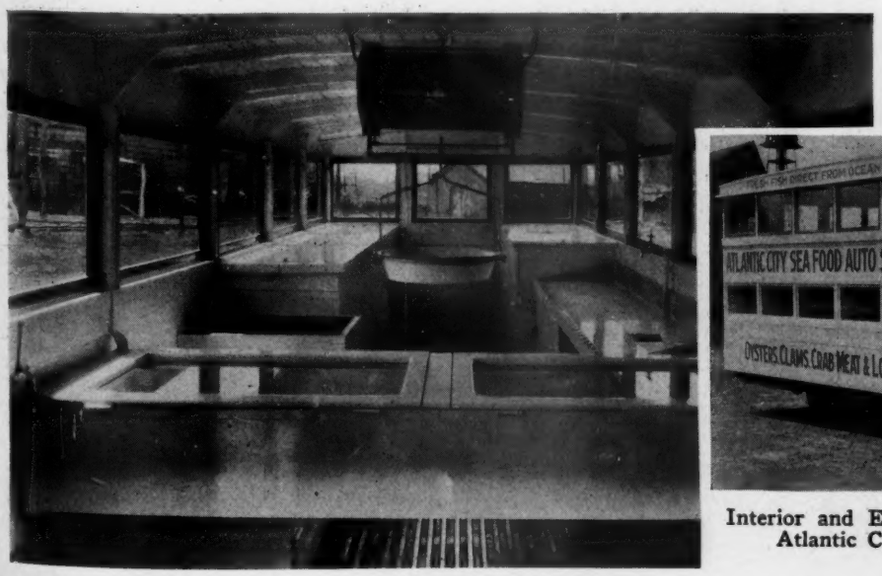
Trucks Bring Fish From Ocean to Consumer

THE utility of the truck is ever expanding. Possibilities for truck exploitation are far from exhausted. One new plan providing for a large outlet for truck sales is the traveling store. Although this sales field was cultivated some time ago, the many ramifications of the "Store at Your Door" plan still offers profitable opportunities to those alert dealers willing to go out and build sales by offering ideas to his prospects.

A very interesting example of proper aggressiveness in this growing outlet for truck sales comes to us from the Traylor Engineering & Manufacturing Co., Cornwalls Heights, Pa. This company recently built a special body to be used in connection with the Traylor chassis for the Atlantic Sea Food Auto Stores Co., Inc., Atlantic City, N. J., which company eventually intends to purchase some fifty odd jobs of a similar type in order to fully carry out its idea of carrying fish practically from the ocean to the consumer's door. This company expects in time to place these stores in operation through most of the Eastern cities and in the cities in the near Western states. The proposition has an assurance of success in two sound human appeals. First, the patron is assured of fresh sea food, which is sanitarily preserved and handled but little; and second, convenience is offered the patron by a regular pre-determined visitation. The proposition when once fully inaugurated will be hailed by the tired housewife practically as a public utility.

The clean, white enameled, plate-glass paneled, and fully inclosed body to be used in this retail fish merchandising scheme is well conveyed in the accompanying illustrations. Entrance is gained by the customer through a door operated by the driver at the right front. The door and step is similar in construction to those used on many of our modern street cars. When closed the interior is effectually inclosed against street or road dust. A door is provided in the rear. Thru this door truck is loaded preparatory to its daily run.

As may be noted from the exterior view the value of advertising has not been neglected in the designing of the body. The four-plate paneled compartments arranged along the sides permits of an attractive display of a variety of fish foods. The body equipment consists of an ice box, display counters, scales, cash registers, cleaning board, sink with running board and large tanks for the carrying of fresh water and drainage. The body is equipped entirely of steel, the floor being of a one-piece steel sheet. The dimensions of the body are as follows: 21 ft. long, 7 ft. wide and 6½ ft. high.



Interior and Exterior Views of Equipment Used by the Atlantic City Sea Food Auto Stores Co., Inc., in Retailing Sea Food

What Would a Complete Portable Repair Shop Mean to Your Business?

Many Unique Ideas and Special Service Appurtenances Are Incorporated in the Special Body Built by E. Fraser, Service Superintendent of the Chicago G. M. C. Branch. This Service Truck is a Veritable Repair Shop Anywhere on the Road

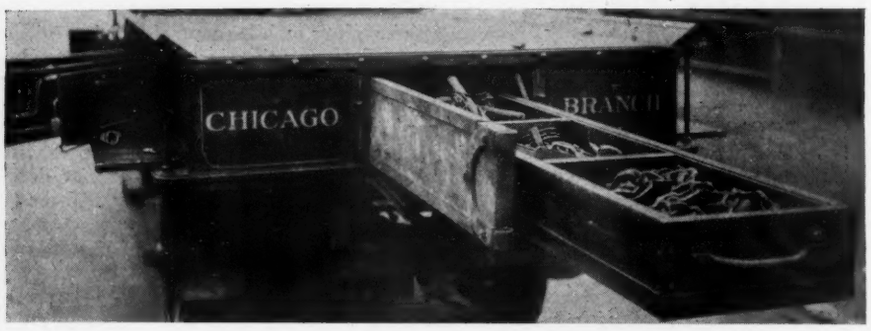
By A. V. COMINGS

THE Chicago branch of the General Motor Truck Co. is now using a service truck that comes mighty near being a whole service station in itself, mounted on wheels and ready at a moment's notice to beat it when the call for assistance comes from the road. A two-ton Model 41 GMC chassis is used, with pneumatic tired wheels, and on this was mounted the service truck body and appurtenances designed and built by E. Fraser, service superintendent at the branch. Mr. Fraser's long experience in servicing trucks on the road armed him with many unique ideas that he has built into this truck, and the result is a complete unit that can do pretty nearly everything on the road that may be done in the average service shop. Much more, in fact, than may be done in many so-called truck service shops.

E. Fraser
Service superintendent, Chicago branch of the General Motor Truck Co.

The body mounted on the chassis looks at first glance like an ordinary flare board express body. It is really a covered box, however, the cover extending over the body at the height of the sides, just below the flare boards. This cover is of 3-16 inch boiler plate, and is so braced from below that the truck may be used in hauling freight and other materials to and from the service station when it is not in use as a service truck. This cuts down to a minimum the idle time that most service trucks have to put in.

The "side boards" of the body are hinged at the bottom, and swing down and outward to the level of the floor. Within these doors on the left side of the truck are drawers of various sizes containing everything from waste to small tools, and a compartment for two spare magnetos and three extra carburetors, always carried. The rear half of this side contains three panel boards, hinged vertically at one end, on which are mounted a large assortment of socket and double ended wrenches of all types. Swinging these panel boards out as shown in the



General Views, Showing the Compact Arrangement of Fraser's Service Truck

Although in appearance like an ordinary flare-board express body it is really a covered tool and parts box extending over the entire platform and to the height of the flare-boards. The interior of this box consists of a clever combination of various-sized drawers, hinged tool racks, shelves and compartments, all of which open from one of the three sides.

This Traveling Repair Shop, Despite Its Unimpressive Appearance as a Service Truck is One of the Most Complete Units of Its Type Ever Made

accompanying picture, places these wrenches at the mechanic's instant disposal, and there is no time wasted looking through a jumble of tools in a littered tool box.

The hinged side of the body on the right side of the truck is used as a work bench when out on a service job. On it is mounted a heavy vise, and in the compartment it opens, are taps and dies, oxy-acetylene cutting and welding torches, gasoline torches, and various other heavy tools.

A long, heavy drawer is fitted into the rear of the body, and when this is pulled out there is disclosed chains, chain hoist, crow bars, rope, sledges, tow bars, two skids, blocking for raising tumbled trucks, and other heavy paraphernalia.

On the rear cross member of the chassis is mounted a heavy tow hook.

On the sides of the chassis, below the body, are swung in secure housings, four large tanks. These carry 30 gallons of water, fifteen gallons of heavy lubricating oil, fifteen gallons of light lubricating oil, and 30 gallons of gasoline. They are a great asset to a service truck. The oxygen and acetylene tanks are mounted crosswise of the chassis, between the frames and the body, back of the rear axle.

The truck is painted in an attractive red, making altogether a very excellent appearance. Manager E. J. Kilborn, in charge of the branch, is very well satisfied with the results achieved by the truck, which has been in service several months, and which has given excellent satisfaction.

A complete list of the tools, etc., housed in the truck, is as follows:

1 Bumper and 1 Model 41 Rad. Guard & Trailer attachment complete with parts for installing; primary wire; McCanna governor; 1¼ McCanna governor; machine bolts, washers, pins, tubing, nuts and screws to meet every need; steel; key stock; spark plugs; cement pails; 12 files; 14 end wrenches; 2 screw drivers; non-clattering set bearing scrapers; slim taper single and double cut.

The following material is carried:

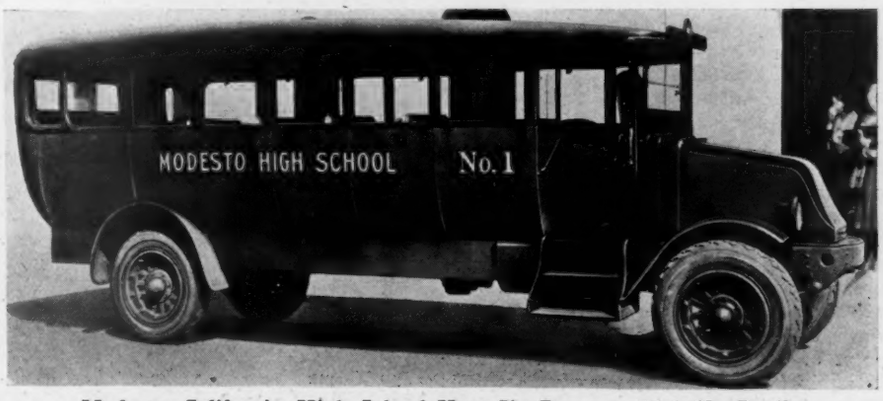
¼ in. Norway iron, ¼ in. cast iron, ¼ in. carbon steel and ¼ in. weld steel welding rod.

Other equipment includes:

1 Hack saw
3 Hammers
1 Tinners' snips
1 Blow torch
2 Screw drivers
1 Set magneto tools
1 Breast drill
5 lb. welding rod
2 lb. welding flux
1 Can soldering paste
3 lb. solder
1 Soldering iron
1 Set drills
1 Set dies and taps
1 5-in. Vise
2 Funnels
2 Cans time saver
2 Cans grinding compound
1 Set punches
1 Set cold chisels
2 Wheel pullers
2 Gear pullers
1 Grease gun
2 Tow bars
2 Tow chains
2 Sledges
2 Crow bars
3 Jacks
200 feet 1-in. rope
1 Small rope
2 Skids
1 Lot blocks
2 Pyrene fire extinguishers
1 Drop light
2 Cold cutters
1 Complete welding and coupling outfit with tanks
15 gal. Light oil
15 gal. Heavy oil
30 gal. Gasoline
30 gal. Water
3 Monarch governors
3 Carburetors
2 Magnetos
Connecting rod bearings, three sizes
Oil gauge
Water hose
Fan belts
Gaskets
Packings
Rubber packing
String packing
Bearing shims

One of the Mack and Detroit Trailer Transportation Units Recently Acquired by the Buffalo-Cleveland Motor Freight Line

This freight company recently purchased over $60,000 worth of trailer equipment from the Detroit Trailer Co., Detroit, Mich., in order to accommodate its rapidly growing business. In the long distance hauling between Rochester and Buffalo, N. Y., Buffalo and Jamestown, and from Cleveland to Erie, Pa., this company found that equipment as this once employed becomes indispensable. The trailer body is one of Detroit Trailer Company's fireproof, burglar-proof jobs designed to carry 15 tons of merchandise. Cubical contents of this body for freight purposes is 1296 cu. ft. Plymetal construction, making the body light, electric brakes, stop lights, Prest-O-Lite lamps for illuminating the sides, which offers advertising value in night traveling, are some of the features of the job. This trailer is mounted on a 168-in. wheelbase Mack truck.



Modesto, California, High School Uses Six Buses to Pick Up Pupils

Six of these International buses cover regular routes in picking up the pupils for the Modesto High School and are run on schedule time. There are stations established along the route where the pupils gather at specified times. These buses have a wheelbase of 196 in. and a length over all of 24 ft. They are equipped with 38 x 7 pneumatic cords. They are capable of a speed of 35 m.p.h., and have a seating capacity of 40 pupils. Entrance is at the front and in direct control of the driver. One large upholstered seat reaches across the rear with smaller seats running crosswise. The body is constructed throughout of hardwood with aluminum bindings. Glass panels on the sides are easily adjustable to meet weather conditions.

State Legislation and Truck Tires

Present Laws Ignore Type of Tire. As Width and Depth of Material and Construction of Tire Are Not Taken Into Consideration New Laws Should be Devised to Correct Present Fallacious Interpretations

By H. W. SLAUSON, M. E., Engineering Service Manager Kelly-Springfield Tire Company

SEVERAL states throughout the country have adopted new measures controlling the use of the highways by motor trucks, which are giving no little concern to truck owners. After truck manufacturers, tire makers and owners had begun to look upon the 800 pounds-load per inch of tire width as a standard, the legislatures of several states have modified these figures until now New York restricts the load to 700 pounds per inch of tire width measured at the base, and various sections of California to figures ranging from 500 pounds to 650.

Some regularity legislation has been necessary, it is true, because of the tendency of the truck owner to overload his vehicle to an extent that not only imposes undue strains on the roads, but wears springs, frame, axles, and tires. Truck and tire manufacturers, therefore, have been in sympathy with the efforts of state and county law-making bodies to restrict loads within sane limits.

Case of Rob One for Another

In their endeavor, however, to seek a remedy for the rapid destruction of roads which, in many cases, have been improperly constructed, our law makers have approached the subject from the wrong angle. It is true that the tire, representing as it does, the point of contact of the load with the road, should be considered as the measure of load carrying ability, but factors other than width of base measurement enter into the carrying capacity of a tire.

A tire which cushions the truck and its load from road shocks also cushions the road from destructive impact blows, and the one may be considered as a measure of the other. The cushioning ability of a truck tire is dependent upon three factors; namely, the volume of rubber used as a cushion, the nature of the compound employed, and the means afforded for the displacement or flow of the rubber when under load. Tests made by the Bureau of Public Roads to determine the impact or hammer blow struck by trucks traveling at various speeds, indicate conclusively that the last-named factor is of great importance, and that provision for the proper absorption of the traction wave or displacement of rubber at the point of contact is a vital factor in the determination of road destructiveness.

The laws of certain states, however, ignore the **type** of tire and take into consideration only its measurement between the flanges of its base band. Thus, for example, a seven inch dual solid tire will, in New York State, be permitted a load of 9800 pounds. This 9800 pounds will, however, under this same law, represent the maximum load which can be carried by a fourteen-inch single cushion tire. and, which on the basis of actual tests by the Bureau of Public Roads, represents but 60 per cent of the destructive effect on the road as is the case with the above-mentioned dual solid tires.

An Important Ignored Factor

Anyone who wears rubber heels realizes that the cushioning effect is obtained not alone from the width of the heel but from its thickness. The entire heel might be covered by a full-sized piece of rubber only one-eighth of an inch thick, but under these conditions there would be no **volume** to the rubber to absorb the shock of walking. The volume or quantity of rubber, therefore, is an important factor in determining the cushioning ability of various tires. State laws, however, ignore this important factor and will permit a six-inch tire which has been worn down to a little more than an inch in thickness to carry a 4200 pound load, whereas, for example, a five-inch tire of 2½ or more inches in thickness would be permitted only a 3500 pound load on the basis of 700 pounds per inch of base width. The first tire, owing to its small height or "profile," would have but little cushioning ability for it would have but six square inches of cross section; whereas the second tire would have twelve-and-a-half square inches of cross section, or more than twice the first—and yet the carrying capacity of the latter is restricted to nearly 70 per cent less than that of the thin, worn-down tire of six-inch base measurement.

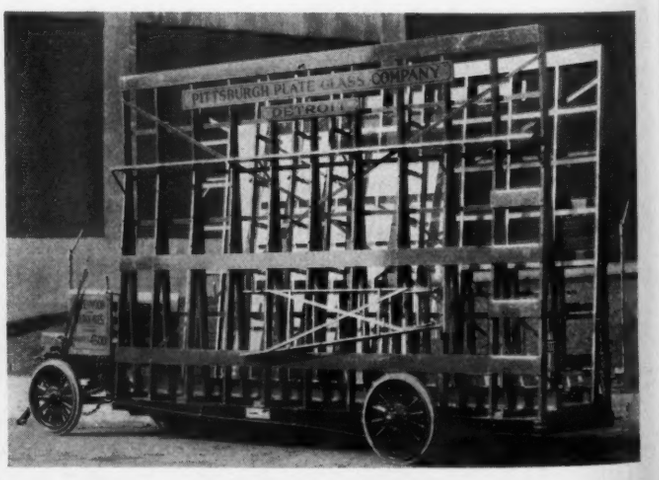
Returning to the seven-inch dual tire already mentioned, which is permitted a load as great as that carried on the fourteen-inch single cushion tire, we find that the former will have an approximate area of cross section of 25.6 square inches. These seven-inch dual solid tires, under New York State's new law of 700 pounds per inch of width, can carry 9800 pounds load, or about 380 pounds per inch of cross section.

The fourteen-inch single cushion tire which, according to the present interpretation of this state law, is limited to the same carrying capacity as the low-profile dual, has an area of cross section of 39.8 square inches or 55 per cent more than the dual. Because it is restricted to the same load, however, each square inch of its cross section is permitted to carry but 246 pounds.

Ever Consider This Fallacy?

Here, then, is the fallacy of the interpretation of such a state law: Volume of rubber or height, although official government tests have shown it to be a vital factor of cushioning, is entirely ignored, and in consequence thereby a solid rubber tire is allowed to carry 380 pounds per square inch of cross section as against only 246 permitted in the case of a cushion tire.

The interpretation of the law in this manner is manifestly unfair, for it ignores the factors that actually determine effective cushioning. It is as impractical to determine the load-carrying capacity of tires by a single measurement of base width as it is to judge of the value of a stack of money by its weight without first determining whether this stack is composed of one dollar bills or one hundred dollar bills.



Maximum Spring Suspension is of Prime Importance in the Transportation of Merchandise as Fragile as Plate Glass.

This drop-frame, four-wheel trailer, designed and constructed by the Highway Trailer Co. Edgerton, Wis., for the Pittsburgh Plate Glass Co., is equipped with special spring suspension and frame. An ordinary drop-frame trailer will not satisfactorily serve in the hauling of glass for the reason that any strain on the frame will break the plate glass. The elasticity of this suspension is said to permit traveling of from 12 to 15 m.p.h. with complete safety.

Replacement Table—Corrected Monthly

Including Piston Ring Sizes, Carburetor Sizes, Hose Sizes, Fan Belt Sizes, Brake Lining Sizes and Truck Frame Dimensions

Note: Under Carburetor Inlet Diameter Will be Found Either the Size of Main Air Intake or the Gasoline Fuel Line

Fan Belt Type: V—V-Shape, F—Flat, R—Round

Name, Model and Tonnage	ENGINE												BRAKE LINING								FRAME	
	Piston Rings		Carburetor			Upper Hose		Lower Hose		Fan Belt			Service				Emergency				Length	Width
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Over All
Acason R–1	4	1/4	1	....	....	....	....	....	....	....	....	....	11 1/2	3	1/4	2	11 1/2	3	1/4	2	112	34
Acason RB–1 1/2	4	1/4	1	....	....	....	....	....	....	....	....	....	11 1/2	3 1/2	1/4	2	11 1/2	3 1/2	1/4	2	112	34
Acason H–2 1/2	3	1/4	1 1/4	....	....	....	....	....	....	....	....	....	13 1/2	3 1/2	1/4	2	13 1/2	3 1/2	1/4	2	130	35
Acason –L3 1/2	3	1/4	1 1/4	....	....	....	....	....	....	....	....	....	16	3 3/4	1/4	2	16	3 3/4	1/4	2	163 3/4	35
Acason M–5	3	1/4	1 1/2	....	....	....	....	....	....	....	....	....	18	4 1/2	1/4	2	18	4 1/2	1/4	2	167 1/2	35
Ace, Series A–1 1/2	3	1/16	1 1/4	1 1/4	H	10 3/4	2 1/4	6 1/2	2	37 1/2	1	F	12	3 1/4	1/4	4	12	3 1/4	1/4	4	122 1/2	32
Ace, Series A–2 1/2	4	1/4	1 1/4	1 1/4	V	10 3/4	2 1/4	5 1/2	1 1/4	33	1 1/4	F	13	3 1/4	1/4	4	13	3 1/4	1/4	4	144 1/2	32
Acme 20–1	3	1/16	1	1	V	11	2	11	2	38 3/4	3/4	V	10 1/2	2 1/2	1/4	4	10 1/2	2 1/2	1/4	4	110 3/8	34
Acme 30–1 1/2	3	1/16	1	1	H	11	2	11	2	38 3/4	3/4	V	12	3 1/4	1/4	4	12	3 1/4	1/4	4	110 3/8	34
Acme 40–2	4	1/4	1	1	H	8	1 1/2	11 1/2	1 1/2	40	1 1/4	F	12	3 1/4	1/4	4	12	3 1/4	1/4	4	123 3/8	34
Acme 60–3	4	1/4	1 1/4	1 1/4	H	7	1 1/4	11	1 1/4	33 3/4	3/4	V	13	3 1/2	1/4	4	13	3 1/2	1/4	4	132 3/8	34
Acme 60L–3	4	1/4	1 1/4	1 1/4	H	10	1 1/2	13	1 1/2	33 1/2	1 1/4	F	13	3 1/2	1/4	4	13	3 1/2	1/4	4	140 11/16	34
Acme 90–4 1/2	4	1/4	1 1/4	1 1/4	H	11 1/2	1 1/2	13	1 1/2	33 1/2	1 1/4	F	15 1/2	3 3/4	1/4	4	15 1/2	3 3/4	1/4	4	150 1/4	36
Acme 125–6 1/4	3	1/4	1 1/2	1 1/2	H	11	2	11 1/2	2	40 1/2	2	F	18	4	4	4	18	4	1/4	4	159 3/4	37
American 25–2 1/2	4	1/4	1/16	1 1/4	V	19	1 3/4	17	1 1/2	38	2	F	19	2 1/4	1/4	4	19	2 1/4	1/4	4	142	33
American 40–4	4	1/4	1/16	1 1/4	V	19	1 3/4	9 1/2	1 3/4	38	2	F	57	2 1/2	1/16	2	41 1/2	2 1/2	1/4	2	142	37
American 50–5	4	1 1/4	1/16	1 1/4	V	19	1 3/4	9 1/2	1 3/4	38	2	F							1/16	2	142	37
Apex C–1	3	1/16	1	1	V	7 1/4	2	12	2	36 1/2	7/8	....	42	2	....	2	41 1/2	2	....	2	102	35 1/2
Apex D–1 1/2	3	1/16	1	1	V	7 3/4	2	12	2	36 1/2	7/8	....	42	2	....	2	41 1/2	2	....	2	102	35 1/2
Apex E–2 1/2	4	1/4	1	1 1/4	V	7 1/2	1 1/4	8	2	32	1	....	54	2 1/4	....	2	53 1/4	2	....	2	128	31 1/2
Apex G	3	1/16	1	1	V	12	2	15 1/2	2	34 1/2	1 7/8	....	24	2	....	2	41 1/2	2	....	2	102	35 1/2
Armleder 20	4	1/4	1	1/16	V	12	1 3/4	16 1/2	1 1/4	31 1/2	2	F	11 1/2	3 1/4	1/4	4	11 1/2	3 1/4	1/4	4	104 1/4	32
Armleder 21–1 1/2	4	1/4	1	1/16	V	12	1 3/4	16 1/2	1 1/4	31 1/2	2	F	11 1/2	3 1/4	1/4	4	11 1/2	3 1/4	1/4	4	Opt	32
Armleder 40B–1 1/2	4	1/4	1 1/4	1/16	V	9 1/2	2	11 1/2	1 1/4	33 1/4	2	F	13 1/2	3 1/2	1/4	4	13 1/4	3 1/2	1/4	4	Opt	32
Armleder 40C–1 1/2	3	1/16	1 1/4	1/16	V	10	1 1/2	11 1/2	1 1/4	35	1 1/4	F	13 1/4	3 1/2	1/4	4	13 1/4	3 1/2	1/4	4	Opt	32
Armleder KW–3 1/2	4	1/4	1 1/4	1/16	V	12	2	16 1/2	1 1/4	35 3/4	2	F	42	3	1/16	1	16	3 3/4	1/4	8	Opt	36
Armleder KWC–3 1/2	3	1/16	1 1/4	1/16	V	10	1 1/2	16 1/2	1 1/4	35 3/4	2	F	42	3	1/16	1	16 3/4	3 3/4	3/4	8	Opt	36
Armleder HWB–2 1/2	4	1/4	1 1/4	1/16	V	9 1/2	2	11 1/2	1 1/4	33	2	F	13 1/4	3 1/2	1/4	4	13 1/4	3 1/2	1/4	4	Opt	32
Armleder HWC–2 1/2	4	1/16	1 1/4	1/16	V	10	1 1/2	11 1/2	1 1/4	35	1 1/4	F	13 1/4	3 1/2	1/4	4	13 1/4	3 1/2	1/4	4	Opt	32
Atco B–1 1/2	4	1/4	1	1	V	11	2	11	1 1/4	31 1/2	2	F	25 1/2	2 1/2	11/32	4	18	2 1/2	11/32	4	109 3/4	32
Atco B1–1 1/2	4	1/4	1	1	V	11	2	11	1 1/4	31 1/2	2	F	46	2 1/2	11/32	2	46	2 1/4	11/32	2	109 3/4	32
Atco A–2 1/2	4	1/4	1 1/4	1 1/4	V	12	2	11	1 1/4	33 1/4	1 1/4	F	25 1/2	2 1/2	11/32	4	18	2 1/2	11/32	4	124 1/4	33
Atlas 21–1	3	1/16	1 1/4	1/4	H	9	2 1/4	14 1/2	2 1/4	31 1/2	1	F	40	2 1/4	1 3/16	1	22 1/2	2 1/4	1/16	1	84 3/4	33 3/4
Atterbury 20R–1 1/2	3	1/16	1	3/8	....	8	1 1/2	14	1 1/2	38 11/16	1 1/4	F	11 5/16	3 1/4	1/4	4	11 5/16	3 1/4	1/4	4	122 1/8	34
Atterbury 7CX–2 1/2	3	1/16	1 1/4	3/8	....	5 3/4	1 1/4	6 3/4	1 1/4	30 1/4	1 1/4	F	13 1/16	3 1/2	1/4	4	13 1/16	3 1/2	1/4	4	133 3/8	34
Atterbury 7D–3 1/2	3	1/16	1 1/4	3/8	....	8	1 1/2	6	1 1/4	30 1/4	1 1/4	F	15 5/8	3 3/4	1/4	4	15 5/8	3 3/4	1/4	4	145 3/8	37 1/2
Atterbury 8E–5	3	1/4	1 1/2	3/8	....	14	2	20 1/2	2	40	2	F	17 3/4	4	1/4	4	17 3/4	4	1/4	4	157 7/8	37 1/2
Autocar XXI–F–2	4	1/16	1 1/16	....	....	3	1 1/8	4	1 1/8	....	....	....	16 1/4	2 1/2	11/32	4	13	2 1/2	11/32	4	91	34
Autocar XXI–G–2	4	1/16	1 1/16	....	....	3	1 1/8	4	1 1/8	....	....	....	....	2 1/2	11/32	4	13	2 1/2	11/32	4	114	34
Autocar XXVI–Y4	3	1/4	1 1/16	....	....	3 1/2	1 1/2	3	1 1/2	48 3/4	1 1/2	F	25 1/4	2 3/4	1/4	4	25 1/2	2 3/4	1/4	4	121	34 1/8
Autocar XXVI–B4	3	1/4	1 1/16	....	....	3 1/2	1 1/2	3	1 1/2	48 3/4	1 1/2	F	25 1/4	2 3/4	1/4	4	25 1/2	2 3/4	1/4	4	176	34 1/8
Available H–1 1/2	4	1/16	2 1/4	1 1/16	....	11	1 5/8	14	1 5/8	40	2	....	48	2 1/2	1/4	2	36	2 1/2	1/4	2	120	32
Available H–2 1/2	3	1/16	2 1/4	1 1/16	....	11	1 5/8	14	1 5/8	40	2	....	13 1/2	3 1/2	1/4	4	13 1/2	3 1/2	1/4	4	144	32
Available H3	3	1/16	2 1/2	1 1/16	....	11	1 5/8	14	1 5/8	42	2	....	16	3 3/4	1/4	4	16	3 3/4	1/4	4	168	36
Available H5	3	1/4	2 1/2	1 11/16	....	12	2	16	2	40	2	....	18	4	1/4	4	18	4	1/4	4	168	38
Available H7	3	1/4	2 1/2	1 11/16	....	12	2	16	2	40	2	....	72	3 1/2	1/4	2	72	3 1/2	1/4	2	168	38
Available H2	4	1/16	2 1/4	1 1/16	V	12	1 5/8	14	1 5/8	40	2	F	48	2 1/2	1/4	2	36	2 1/2	1/4	2	120	32
Available H2 1/2	4	1/16	2 1/4	1 1/16	V	12	1 5/8	14	1 5/8	40	2	F	13 1/2	3 1/2	1/4	4	13 1/2	3 1/2	1/4	4	144	32
Available H3 1/2	4	1/16	2 1/2	1 11/16	V	12	1 5/8	14	1 5/8	42	2	F	16	3 3/4	1/4	4	16	3 3/4	1/4	4	168	36
Available H5	4	1/4	2 1/2	1 11/16	V	12	2	16	2	40	2	F	18	4	1/4	4	18	4	1/4	4	168	38
Available H7	4	1/4	2 1/2	1 11/16	V	12	2	16	2	40	2	F	72	3 1/2	1/4	2	72	3 1/2	1/4	2	168	38
Avery 1	3	1/16	....	1	....	10	2	6 1/2	2	31 3/4	1 1/2	F	19 1/2	2	1/16	4	18 1/2	2	1/16	4	85	34
Bell M–1	4	1/16	1	1/16	V	10	2	10	1 1/2	32	2	F	36	2 1/2	1/16	1	42	3	1/4	1	110	34
Bell E–1 1/2	4	1/16	1	1/16	V	10	2	10	1 1/2	32	2	F	39	2 1/2	1/16	1	48	3	1/4	1	114	34
Bell O–2 1/2	4	1/16	1 1/4	1/16	V	10	2	10	1 1/2	32	2	F	48	2 1/2	1/16	1	54	3	1/4	1	126	34
Bessemer G–1	3	1/16	1	1/16	V	11 1/2	2 1/4	10	2 1/4	42	5/16	V	47 1/2	2 1/2	1/16	2	45 1/2	2 1/4	1/16	2	98 1/4	34
Bessemer H–2–1 1/2	3	1/16	1	1/16	V	11 1/2	2 1/4	10	2 1/4	43	5/8	V	56 1/2	2 1/2	1/16	2	55	2 1/4	1/16	2	116	34
Bessemer J2–2 1/2	3	1/16	1 1/4	1/16	V	12	1 1/2	5	1 7/8	36 1/4	1 1/2	F	56 1/2	2 1/2	1/16	2	55	2 1/2	1/16	2	142 3/8	34
Bessemer K2–4	3	1/16	1 1/4	1/16	V	11 1/2	2 1/4	10	2 1/4	39 3/8	1 1/2	F	58 1/2	3 1/2	1/16	2	30 1/4	4 1/2	1/16	1	157 1/2	38
Brinton C–1 1/2	3	1/16	1 1/16	3/8	....	11	1 1/4	13	1 1/4	33	11/16	F	39	2 1/2	1/16	1	38	2 1/2	1/16	1	118	33
Brinton D–2 1/2	3	1/16	1 1/16	3/8	....	11	1 1/4	13	1 1/4	33	11/16	F	13	3 1/2	1/4	2	13	3 1/2	1/4	2	135 1/2	33
Brockway S2–1 1/2	3	1/16	1	....	V	10 1/2	2 1/4	5 1/2	2 1/4	39	1 1/4	F	20	2	1/16	4	20	2	1/16	4	118	32
Brockway K4–2 1/2	3	1/16	1 1/4	....	V	6 1/2	1 3/4	13	1 1/4	34	1 1/4	F	12	3 3/8	1/16	4	12	3 3/8	1/16	4	142	34
Brockway R–2–3 1/2	3	1/16	1 1/4	....	V	9 1/2	1 3/4	14	1 1/4	34	1 1/2	F	15 5/8	3 3/4	1/16	4	15 5/8	3 3/4	1/16	4	176	36
Brockway T–5	3	1/4	1 1/2	....	V	13	2	22	2	40 3/8	2	F	18	4	1/16	4	18	4	1/16	4	176	36
Buffalo Tractor-Truck	4	1/16	1 1/4	1/16	V	7	1 5/8	13	1 5/8	41 1/2	2	F	21	2 1/4	1/4	8	48 7/8	2 1/4	1/4	2	124	34
Capitol G–1 1/2	3	1/16	1 1/16	1 1/16	V	18	1 3/4	18	1 1/4	32 11/16	1 1/4	F	47 1/16	2 1/2	1/16	1	33 1/4	2 1/2	1/16	1	120	32
Capitol H–2 1/2 and K–2 1/2	3	1/16	1 1/16	1 11/16	V	18	1 3/4	18	1 1/2	39 1/2	2	F	57 1/2	2 1/2	1/16	1	42 1/2	2 1/2	1/16	1	132	34
Capitol M–3 1/2	3	1/16	1 1/16	1 11/16	V	18	1 3/4	18	1 1/2	39 1/2	2	F	57 1/2	2 1/2	1/16	1	42 1/2	2 1/2	1/16	1	144	34
Case	3	1/4	1 1/16	1 11/16	V	7	1 1/2	6	1 1/2	47 1/8	2	....	25 1/2	2 1/2	1/16	4	24 1/4	2 1/4	1/16	4	106	31
Chicago C–1 1/2	4	....	1	1 1/2	....	....	....	....	....	40	2	....	12 1/8	3 1/4	1/4	4	12 1/8	3 1/4	1/4	4	123	32
Chicago C–2 1/2	4	....	1 1/4	1 3/4	....	....	....	....	....	40	2	....	13 3/4	3 1/2	1/4	4	13 3/4	3 1/2	1/4	4	135	32
Chicago C–3 1/2	4	....	1 1/4	1 3/4	....	....	....	....	....	46	2	....	16	3 3/4	1/4	4	16	3 3/4	1/4	4	180	36 3/4
Chicago D–5	4	....	1 3/4	1 3/4	....	....	....	....	....	46	2	....	18	4	1/4	4	18	4	1/4	4	180	36 3/4
Climber A–20	3	1/16	1	1 1/4	H	....	....	....	....	32	1	....	16	2 1/4	1/4	2	16	2 1/8	1/16	1	120	34
Clydesdale 120B–5–6	3	1/4	1 11/16	1/16	V	9	2	18 1/2	2	46 1/2	2	F	18	4	1/4	4	18	4	1/4	4	131	38
Clydesdale 90–3 1/2–4 1/2	3	1/16	1 5/8	1/16	V	9	1 1/2	14	1 1/2	42	1 1/2	F	16	3 3/4	1/4	4	16	3 3/4	1/4	4	143	38
Clydesdale 65EX 2 1/2–3	3	1/16	1 5/8	1/16	V	9	1 1/2	14	1 1/2	42	1 1/2	F	13 1/4	3 1/2	1/4	4	13 1/4	3 1/2	1/4	4	132	33 1/4

Replacement Table—Continued

Name, Model and Tonnage	ENGINE												BRAKE LINING								FRAME	
	Piston Rings		Carburetor			Upper Hose		Lower Hose		Fan Belt			Service				Emergency				Length	Width
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Over All
Clydesdale 65X–2½–3	3	⅛	1 7/16	7/16	V	11	1½	11	1½	40	1½	F	14¼	3½	¼	4	13¼	3½	¼	4	137	33¼
Clydesdale 42–1½–2	3	⅛	1 7/16	7/16	V	15	2	12	2	41	¾	V	12	3¼	¼	4	12	3¼	¼	4	117	34
Clydesdale 20–1–1½	3	⅛	1 7/16	7/16	V	15	2	12	2	41	¾	V	11¼	3	¼	4	11¼	3	¼	4	95	34
Clydesdale 18–¾–1¼	3	⅛	1 7/16	7/16	V	15	2	12	2	41	¾	V	11¼	2½	¼	4	11½	2½	¼	4	95	34
Clydesdale 10–¾–1¼	3	⅛	1 7/16	7/16	V	15	2	12	2	41	¾	V	11¼	2½	¼	4	11¼	2½	¼	4	109	34
Collier 18–1	3	⅛	1	....	V	9¾	2	10½	1¾	40	1	F	24	3½	⅛	4	24	3½	⅛	4	106	35¼
Collier 19–1½	3	⅛	1	....	V	9¾	2	10½	1¾	40	1	F	24	3½	⅛	4	24	3½	⅛	4	120	32
Collier 21–2	3	⅛	1½	....	V	6	1½	10½	1¾	40	1	F	27½	3½	⅛	4	27½	3½	⅛	4	132	32
Collier 22–2½	3	⅛	1½	....	V	6	1½	10½	1¾	40	1	F	27½	3½	⅛	4	27½	3½	⅛	4	144	32
Commerce T–1500	3	⅛	1	....	V	10	2	10	2	44	¾	V	50	2	⅛	2	48½	2	⅛	2	92 5/8	34
Commerce 12–3000	3	⅛	1	....	V	10	2	10	2	44	¾	V	45	2½	⅛	2	43	2¼	⅛	2	99 5/8	34
Commerce 16–4000	3	⅛	1	....	V	10	2	10	2	44	¾	V	50¾	2½	⅛	2	48	2¼	⅛	2	108 5/8	34
Commerce 18–5000	3	⅛	1¼	....	V	6	1½	11	1½	33	1¼	F	50¾	2½	⅛	2	48	2¼	⅛	2	128 5/8	34
Concord A–2	4	⅛	1¼	....	H	11	2⅜	9½	1½	34	2	F	12	3¼	¼	4	12	3¼	¼	4	108¼	32½
Concord AX–2	4	⅛	1¼	....	H	11	2⅜	9½	1½	34	2	F	12	3¼	¼	4	12	3¼	¼	4	122¾	32½
Concord B–3	4	⅛	1¼	....	H	11	2⅜	9½	1½	34	2	F	13½	3½	¼	4	13½	3½	¼	4	122½	32¼
Concord BX–3	4	⅛	1¼	....	H	11	2⅜	9½	1½	34	2	F	13½	3½	¼	4	13½	3½	¼	4	155 5/8	32¼
Corbitt E–1	3	⅛	1	....	....	8	2	14	2	38	5/8	V	19	2	⅛	2	19	2	⅛	2	105	34
Corbitt D–1½	3	⅛	1¼	....	....	8	2	14	2	38	5/8	V	45¼	2	¼	1	45¼	2	¼	1	120	34
Corbitt C–2	3	⅛	1¼	....	....	14	1¼	13	1¼	36	1¼	F	51½	2¼	¼	1	51½	2¼	¼	1	138	35
Corbitt B–2½	3	⅛	1¼	....	....	14	1¼	13	1¼	36	1¼	F	51½	2¼	¼	1	51½	2¼	¼	1	138	35
Corbitt AA–5	3	⅛	1½	....	....	13	1¼	8	1¼	36	2	F	69¼	3	¼	1	69¼	3	¼	1	160	38
Corbitt A–3½	3	¼	1¼	....	....	13	2	14	2	36	1¼	V	64	2½	¼	1	64	2½	¼	1	160	35
Cyclone A–3000	3	⅛	1	1	V	16	2	16	2	32½	1¼	F	21¼	2½	¼	4	19¾	2¼	¼	4	113	34
Dart S–1½	3	⅛	1¼	1 11/16	H	11	2	8	1¾	36	1	F	19	1¾	⅛	4	19	1¾	⅛	4	112	34
Dart M–2½	4	¼	1¼	1 11/16	H	11	2	13	1¼	35	2	F	10	2½	¼	2	19	3½	¼	4	124	34
Dart W–3½	4	¼	1½	2	H	11	2	12	1½	40	5/8	V	28	2¾	¼	4	28	2¾	¼	4	144	38
Day-Elder AS–1	3	⅛	1¼	1½	V	9	2	9½	2	40	5/8	V	19	2	¼	4	19	2	¼	4	108	35
Day-Elder B–1½	3	⅛	1¼	1½	V	9	2	9½	2	40	5/8	V	19	2	¼	4	19	2	¼	4	120	35
Day-Elder D–2	3	⅛	1¼	1½	V	4	4	9	1 3/8	35	5/8	V	45	2	¼	2	45	2	¼	2	125	35
Day-Elder C–2½	3	¼	1¼	1½	V	10½	2	12	1 3/8	36¾	2	F	52	2¼	¼	2	52	2¼	¼	2	123	35
Day-Elder F–3½	3	⅛	1¼	1¾	V	6¾	1¾	12	1¼	35¼	1½	F	56½	2½	¼	2	56½	2½	¼	2	148	35
Day-Elder E–5	4	¼	1½	1¾	V	12½	2	10	1 3/8	38½	1½	F	69	3	¼	2	69	3	¼	2	155	37
Dearborn BW–2	3	....	1	....	....	8¾	2	6	1¾	37	1	F	18	2½	⅛	2	18	1½	⅛	2	130	32
Dearborn F–1½	3	....	1	....	....	12	2	8	1¾	37	1	F	16½	2½	⅛	2	16½	1½	⅛	2	96½	34
Dearborn C–1	3	....	¾	....	....	....	....	....	....	....	....	....	38	2	⅛	1	38	2	⅛	1	107	32
Defiance B–1½	3	⅛	1	1	V	10	2	8	2	40¾	1¼	F	45	2½	⅛	1	43 1/16	2¼	⅛	1	116	34
Defiance C–2	3	⅛	1	1	V	10	2	8	2	40¾	1¼	F	54 7/16	2½	⅛	1	52½	2¼	⅛	1	116	34
Defiance D	3	⅛	1	1	V	10	2	8½	1¼	40¾	1¼	F	45	2½	⅛	1	43 1/16	2¼	⅛	1	120	34
Defiance E	3	⅛	1	1	V	10	2	8½	1¼	40¾	1¼	F	54 7/16	2½	⅛	1	52½	2¼	⅛	1	120	34
Denby 31–¾	3	⅛	1	1	....	6	2⅜	19	2⅜	38 5/8	1¼	F	49	2½	⅛	2	47½	2¼	⅛	2	97 5/8	34
Denby 33–1½	3	⅛	1	1	....	9	2	12	2	41 1/16	¾	V	8½	4	¼	2	46½	1½	⅛	2	120	33¼
Denby 34	3	⅛	1	1	....	9	2	12	2	41 1/16	¾	V	53 1/16	3	⅛	2	50 1/16	2	⅛	2	127	34
Denby 35–2½	3	⅛	1¼	1¼	....	8	2	14¼	1¼	34¼	1¼	F	8½	4	¼	2	51	3	⅛	2	143¾	33¼
Denby 27–4	3	⅛	1¼	1¼	....	13	1¾	16¼	1¼	38½	1½	F	8½	4	¼	2	58	2½	⅛	2	140	34
Denby 210–5	3	⅛	1¼	1¼	....	13	1¾	16¼	1¼	38½	1½	F	8½	4	¼	2	89	2¼	⅛	2	140	34
Dependable Dispatch A-1¼	4	⅛	1	1	V	14	2¼	15	1¼	37½	2	F	53¼	2¼	⅛	1	38¼	2¼	⅛	1	108	33½
Dependable C–2	4	⅛	1	1	V	14	2¼	15	1¼	37½	2	F	53½	2½	⅛	1	38½	2½	⅛	1	121	33
Dependable D–2½	4	¼	1¼	1	V	10	2¼	11½	1¼	37½	2	F	53½	2½	⅛	1	38½	2½	⅛	1	140	33
Dependable E–3	4	¼	1¼	1	V	10	2¼	11½	1¼	37½	2	F	63	2½	⅛	1	49	2½	⅛	1	152	33
Dependable G–3½	4	¼	1¼	1	V	13	2	13	1¼	37½	2	F	63	2½	⅛	1	49	2½	⅛	1	170	33
Diamond T–O–3–1	3	⅛	1	1¼	V	9	1¼	6	1¼	35	2	F	48	2½	⅛	2	33	2½	⅛	2	100	34
Diamond T–FS&T–1½	3	⅛	1	1¼	V	9	1¼	6	1¼	35	2	F	11½	3¼	¼	4	11½	3½	¼	4	Opt	34
Diamond T–U–2½	3	⅛	1¼	1½	V	9	1¼	6	1¼	35	2	F	13¼	3½	¼	4	13¼	3½	¼	4	Opt	34
Diamond TK–3½	3	¼	1¼	1½	V	10	1½	10	1½	35	2	F	15⅝	3¾	¼	4	15⅝	3¾	¼	4	Opt	37
Diamond T–EL–5	3	¼	1¼	1½	V	10	1½	10	1½	35	2	F	18	4	¼	4	17 11/16	4	¼	4	Opt	37
Diamond T–S–5	3	¼	1½	1¾	V	9	2	21	2	40⅜	2	F	18	4	¼	4	17 11/16	4	¼	4	Opt	37
Diehl A	3	....	1	1	....	....	....	....	....	....	....	....	28	2	⅛	2	27	2	⅛	2	90	.....
Dodge Brothers–½	3	⅛	1 1/8	¼	....	7	1½	7¼	1 1/16	31	1	R	19¼	2¼	⅛	4	14 3/8	1¾	⅛	4	47 3/8	38
D–Olt	3	⅛	1	7/16	H	18	2	18	2	36	1	F	54	3	⅛	4	42	3	⅛	4	240	34
Dorris K–4–2½	3	¼	1¼	1¼	V	2¼	1½	6¼	1¼	42 7/8	2	F	13½	3½	¼	4	13½	3½	¼	4	142¾	34
Dorris K7–3½	3	¼	1¼	1¼	V	2¼	1½	6¼	1¼	42 7/8	2	F	15¾	3¾	¼	4	15¾	3¾	¼	4	178½	36
Double Drive B3	4	¼	1¼	1⅜	....	....	....	....	....	....	....	....	29	2¼	¼	1	29	2¼	¼	1	124	36
Douglas GW–1½	3	....	1¼	1¼	....	....	....	....	....	....	....	....	45	2½	⅛	2	44	2¼	⅛	2	118	31
Douglas G–1½	3	....	1¼	1¼	....	....	....	....	....	....	....	....	46	2½	⅛	2	44	2¼	⅛	2	118	31
Douglas H–2	3	....	1¼	1¼	....	....	....	....	....	....	....	....	55	2½	⅛	2	52	2¼	⅛	2	118	31
Douglas HW–2	3	....	1¼	1¼	....	....	....	....	....	....	....	....	54	2½	⅛	2	42	2¼	⅛	2	118	31
Douglas I–3	3	....	1¼	1¼	....	....	....	....	....	....	....	....	58	2½	⅛	2	44	2¼	⅛	2	132	31
Drake T–60	3	⅛	1¼	1½	V	9	1½	8	1¼	32	1¼	F	42¼	2½	⅛	2	37	2½	⅛	2	106	34
Duplex E–3½	3	¼	1¼	1	....	....	....	....	....	....	....	....	9½	2½	¼	2	5½	2½	¼	2	126	39⅜
Duplex A	....	....	1¼	1½	....	....	....	....	....	....	....	....	....	2	....	4	....	2	....	4	121	34
Duty 2	3	⅛	1½	1¼	V	8	2¼	18	2	38	1	F	45	2½	⅛	1	40	1¾	⅛	1	117	32
Eagle 100–2	4	⅛	1¼	1	....	14	2	16	1¼	33 5/8	2	....	49½	3	¼	1	46	2	¼	1	Opt	36
Earl 40	3	⅛	....	....	H	5	2	5	2	34½	1	F	40¾	2	¼	2	21½	2	¼	2	....	46
Eugol 752–1	3	¼	1¾	1⅛	V	8	1¾	15½	1¼	32¾	1½	F	11	2½	¼	2	11	2½	¼	2	102	30
Fageol 1½–2	3	¼	1 1/16	1½	V	15½	1¼	11½	1¼	31	5/8	F	19¼	1¾	¼	2	19¼	1¾	¼	2	120	30
Fageol 2½–3	3	¼	1 1/16	1 11/16	V	10	1¼	14¾	1¼	34¾	1½	F	13¼	3½	¼	2	13¼	3¼	¼	2	141	34
Fageol 3½–4	3	¼	1 5/8	2	V	9	1½	17½	1½	40½	1½	F	15½	3¾	⅛	2	15½	3¾	⅛	2	159½	37¾
Fageol 5–6	3	¼	1 5/8	2	V	9	1½	17½	1½	40½	1½	F	18	4	⅛	2	18	4	⅛	2	161¼	37¾
Fargo O17, P18–2, P19–2, P20–2	3	⅛	....	1 1/16	....	10	2	10	2	42	5/8	V	52	2	⅛	2	50½	2	⅛	2	132	33
Fargo R	3	⅛	....	1 1/16	....	10	2	10	2	42	5/8	V	52	3	⅛	2	50½	2	⅛	2	132	33
Federal SD–1–1½	4	⅛	1	1 1/16	V	15	1½	7	1½	35 5/8	1	F	10 31/32	3	¼	4	10 11/16	3	¼	4	112	34
Federal TE–1½–2	3	⅛	1¼	1½	V	7	1¼	6	1½	32½	1	F	13 1/16	3½	¼	4	13 1/16	3½	¼	4	118	34
Federal UE–2–2½	3	⅛	1¼	1½	V	7	1¼	6	1½	32½	1	F	13 1/16	3½	¼	4	13 1/16	3½	¼	4	134	34
Federal WE–3½–4	3	⅛	1¼	1½	V	12½	1¼	9	1¾	39	1½	F	15⅝	3¾	¼	4	15⅝	3¾	¼	4	154	38
Federal XD–2–5–6	4	¼	1 11/16	2	V	10	2	14 7/16	1 7/8	40 7/8	1¾	F	17 11/16	4	¼	4	17 11/16	4	¼	4	154	38
Federal Light Duty	3	⅛	1¼	1½	V	7	1¼	6	1½	32½	1	F	13 1/16	3½	¼	4	13 1/16	3½	¼	4	86	34
Federal Heavy Duty	3	⅛	1¼	1½	V	12½	1¼	9	1¾	39	1½	F	15⅝	3¾	¼	4	15⅝	3¾	¼	4	82	38
Ford T–1	3	¼	1.06	1 1/16	H	4	2	....	1¾	27	1⅛	F	23⅜	1⅛	⅛	1	12	1⅜	⅛	1	60	23
Front Drive C–1½	4	⅛	1	1 1/16	....	....	....	....	....	....	....	....	13	3	⅛	2	15	3	¼	2	124	36
F. W. D. B–3	3	¼	1 11/16	1 1/16	....	4	2	5	1½	40	1⅞	F	27	3½	¼	1	43	2¾	¼	2	136	36
Garford 15¾	4	⅛	1	....	V	....	....	....	....	34	1½	F	11	2½	¼	4	11	2½	¼	4	96	34
Garford 25B–1¼	3	⅛	1¼	....	H	....	....	....	....	37 1/16	1	F	11¾	3¼	¼	4	11¾	3¼	¼	4	108	34
Garford 70H–2	4	¼	1¼	....	V	....	....	....	....	34 1/16	2	F	13 1/16	3½	¼	4	13 1/16	3½	¼	4	121	34
Garford 77D–3½	4	¼	1¼	....	V	....	....	....	....	39	2	F	15⅝	3¾	¼	4	15⅝	3¾	¼	4	144	36
Garford 68D–5	4	¼	1½	....	V	....	....	....	....	41 5/16	2	F	17¾	4	⅜	4	17¾	4	¼	4	150	36
Garford 150–A–7½	4	¼	1½	....	V	....	....	....	....	41 1/16	2	F	10½	4	⅜	2	21 5/8	4	¼	4	150	36
Gary F–1–1½	4	¼	1¼	3/8	....	....	....	....	....	....	....	....	11	3	¼	2	11	3	¼	2	97 3/8	34
Gary I–2	4	¼	1¼	3/8	....	....	....	....	....	....	....	....	24	3¼	¼	2	24	3¼	¼	2	120	34

Replacement Table—Continued

Name, Model and Tonnage	ENGINE												BRAKE LINING								FRAME	
	Piston Rings		Carburetor			Upper Hose		Lower Hose		Fan Belt			Service				Emergency				Length	Width
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Over All
Gary J–2½	4	¼	1¼	⅜									27	3½	¼	2	27	3½	¼	2	120	34
Gary K–3½	4	¼	1¼	⅜									32	3¾	¼	2	32	3¾	¼	2	148	36¾
Gary M–5	4	¼	1½	⅜									36½	4	¼	2	36½	4	¼	2	168	39
Gersix K–2½	4	¼	1¼	1¼	H	12	2	14	1¼	36	2		20	2½	¼	4	47	2¼	¼	2	131	34
Gersix M–1½	4	¼	1¼	1¼	H	12	2	14	1¼	36	2		46	2	¼	2	46	2	¼	2	114	32
Gersix L–3½	4	¼	1¼	1¼	H	13½	2	16	1¼	36	2		56	2½	¼	2	56	2½	¼	2	144	36½
Giant 15A–1½	3	1/16	1										19	2	1/16	4	19	2	1/16	4	116½	32
Giant 16–2½	3	1/16	1¼										45½	2	1/16	2	45½	2	1/16	2	140½	33
Giant 17–3½	3	1/16	1½										56½	2½	¼	2	46½	2½	¼	2	183½	36
G.M.C. K–15	4	1/16	1¼	1⅝	V	8¾	1½	8 1/16	1½	35⅝		V	49⅝	2½	1/16	2	47	2⅜	1/16	2	89	34
G.M.C. K–16	4	1/16	1¼	1⅝	V	8¾	1½	8 1/16	1½	35⅝		V	49⅝	2⅛	1/16	2	47	2⅜	1/16	2	89	34
G.M.C. K–41	4	¼	1¼	1⅝	V	10	1¾	9½	1¾	37⅞		V	13	3½	¼	4	13	3½	¼	4	Opt	33
G.M.C. K–71	4	¼	1¼	1⅝	V	11¾	1¾	9½	1¾	37⅞		V	15½	3¾	¼	4	15½	3¾	¼	4	Opt	38
G.M.C. K–101	4	¼	1¼	1⅝	V	11¾	1¾	9½	1¾	37⅞		V	17¾	4	¼	4	17¾	4	¼	4	Opt	38
Gramm-Pioneer 10 Speed	3	1/16	1	1½	V	12	2¼	14½	2¼	29	1	F	48	2	1/16	2	26	2	1/16	1	97	30⅛
Gramm-Pioneer 15–1½	3	1/16	1	1½	V	10¼	2	6	2	39	1¼	F	48½	2	1/16	2	45⅞	1½	1/16	2	120	32
Gramm-Pioneer 65–1½	3	1/16	1	1½	V	10¼	2	6	2	39	1¼	F	19¾	1¾	1/16	4	19¾	1¾	1/16	4	120	32
Gramm-Pioneer 20–2	3	1/16	1¼	1½	V	4½	1½	12	1½	32	2	F	45	2	¼	4	45	2	¼	4	126	32
Gramm-Pioneer 30–3	3	¼	1¼	1½	V	11	11½	9	1½	33¾	2	F	22¾	2¼	¼	4	22¾	2¼	¼	4	129¾	36
Gramm-Pioneer 75P–3½	3	¼	1¼	1½	V								22¾	2¼	¼	4	22¾	2¼	¼	4	129¾	36
Gramm–Pioneer 40–4	3	¼	1¼	1½	V	11	1½	9	1½	33¾	2	F	28¾	2¾	¼	4	28¾	2¾	¼	4	144	36
Gramm-Pioneer 50–5–6	3	¼	1½	1¾	V	23¼	2	13¾	1⅞	40¾	2	F	32M	2¾	¼	4	32 11/16	2¾	¼	4	132	36
G. W. W.	3	¼	1¼	1¾	V	12	1¾	11	1¾	37	2	F	49	2½	¼	2	47	1½	1/16	2	89	32
Hall 2-Worm–2½	3	1/16				8	1¼	12½	1¼	32	1¼	F	11½	3	¼	4	11½	3	¼	4	144	38
Hall 3½-Worm	3	1/16				12½	1¾	15½	1¼	38¼	1½	F	15	3¾	¼	4	15	3¾	¼	4	180	39
Hall 5-Worm	3	1/16				12½	1¾	15½	1¼	38½	1½	F	18	4	¼	4	18	4	¼	4	144	39
Hall 7-Chain	3	1/16				12½	1¾	15½	1¼	38⅛	1½	F	18	4	¼	4	18	4	¼	4	144	39
Harvey WOA–2	4	¼	1¼	2	V	11	2	14	1¾	35⅝	2	F	45	2	¼	2	45	2	¼	2	136	32
Harvey WFA–2½	4	¼	1¼	2	V	11	2	14	1¼	35⅝	2	F	50	2¼	¼	2	50	2¼	¼	2	136	32
Harvey WHA–3½	4	¼	2	2	V	12	2	14	1¼	35⅝	2	F	56½	2½	¼	2	56½	2½	¼	2	144	35
Hendrickson N–2½	3	¼	1¼	1/16									12	3½	1/16	4	12	3½	1/16	4	Opt	32½
Hendrickson M–3½	3	¼	1¼	1/16									16	3¾	1/16	4	16	3¾	1/16	4	Opt	36
Hendrickson K–5	3	¼	1½	1/16									18	4	1/16	4	18	4	1/16	4	Opt	38
Higrade A18–1	3	1/16	1	1	V	9	2	7	2	32	½	R	12	1½	¼	2	12	1½	¼	2	85	32
Higrade B20–1½	3	1/16	1⅛	1⅛	V	9	2	7	2	32	½	R	18	2	¼	2	18	2	¼	2	100	32
Hurlburt A1½–2	3	1/16	1¼	1									22	2	¼	2	22	2	¼	2	132	35½
Hurlburt B2½	3	1/16	1¼	1									24	2½	¼	2	23	2½	¼	2	154	34
Hurlburt C3½–4	3	¼	1½	1¼									26	3	¼	2	25	3	¼	2	144½	34
Hurlburt D5–5½	3	¼	1½	1¼									28	3	¼	2	27	3	¼	2	144½	34
Huron–Erie 1½	4		1	1½									15	3	¼	2	50	2	¼	2	121	33
Huron-Michigan 2½	4		1¼	1 11/16									15	3	¼	2	50	2½	¼	2	145	33
Indiana 12–1½	3	¼	1			17	1¼	14	1¼	38½	1		17½	2	¼	4	17½	2	¼	4	108	32
Indiana 20–2	3	¼	1¼			6	1¼	13	1¼	26⅝	1½		44	2	¼	2	44	2	¼	2	126	33
Indiana 25–2½	3	¼	1¼			6	1¼	13	1¼	26⅝	1½		51	2¼	¼	2	51	2¼	¼	2	138	33
Indiana 35–3½	3	¼	1¾			6	1¼	13	1¼	26⅝	1½		56	2½	¼	2	56	2½	¼	2	144	34½
Indiana 51–5	3	¼	1½			10	1½	17½	1½	26⅝	1½		68	3	¼	2	68	3	¼	2	156	37½
International S–1500 lbs.–Speed Tr	3	¼	1¼	1¼	V	9¾	2¼	17¾	2¼	30¼	1	F	38	2	1/32	2	36	2	1/32	2	90	34
International 21–2000 lbs.	3	¼	1¼	1¾	V	6	1½	3½	1⅛	38⅛	1⅛	F	43¾	2¼	1/32	2	43¾	2¼	1/32	2	75 11/16	34
International 31–3000 lbs.	3	¼	1¼	1¾	V	6	1½	3½	1⅛	38⅛	1⅛	F	43¾	2¼	1/32	2	43¾	2¼	1/32	2	106½	34
International 41–4000 lbs.	3	¼	1¼	1¾	V	6	1½	3½	1⅛	38⅛	1⅛	F	50⅝	2¼	1/32	2	50⅝	2¼	1/32	2	111 11/16	32¼
International 61–6000 lbs.	4	¼	1¼	1¾	V	9	2¼	14½	2				50⅝	2¼	1/32	2	50⅝	2¼	1/32	2	118 11/16	34
International S–1500 lbs.–Speed Tr	4	¼	1¼	1¾	V	9	2¼	14½	2				73 1/16	2½	1/32	2	73 1/16	2½	1/32	2	147⅞	34
Jackson B–3½	3	1/16	1¼	1½	V	11				32½	1¼	F	58½	3½	¼	2					150	36
Kalamazoo G–1	3	¼	2 1/16	1 1/16	....	15½	1½	8	1½	40	1½	F	50	2½	1/16	1	34	2½	1/16	1	120	32½
Kalamazoo LG	3	¼	2 1/16	1 1/16	....	6	1½	16	1¼	39	1½	F	50	2½	1/16	1	34	2½	1/16	1	120	32½
Kalamazoo NH	3	¼	2 1/16	1 1/16	....	20	1¾	19½	1½	42	2		52	2¼	¼	1	52	2¼	¼	1	144	33
Kalamazoo HD	3	¼	2 1/16	1 1/16	....	20	1¾	19½	1½	42	2		52	2¼	¼	1	52	2¼	¼	1	120	33
Kalamazoo SK	3	¼	2 1/16	1 1/16	....	20	1¾	19½	1½	42	2		57	2½	¼	1	57	2½	¼	1	152	36
Kalamazoo OK	3	¼	2 1/16	1 1/16	....	20	1¾	19½	1½	42	2		68	3	¼	1	68	3	¼	2	152	36
Kearns H–1	3	1/16	1	1/16	H	16	2	16	2	33	1		42	2	1/16	1	21	2	1/16	2	90	34
Kearns N–2	3	1/16	1	1/16	H	18	2	18	2	33	1		45	2½	1/16	1	22	2¼	1/16	2	120	34
Kelly-Springfield K31–1½	4	¼	1	1/16	V	7	1½	13	1½	54½	1		16¾	1⅞	1/16	4	16¾	1⅞	1/16	4	138	34
Kelly-Springfield K34–1½	4	¼	1	1/16	V	7	1½	13	1½	54½	1		17⅜	1⅞	1/16	4	17⅜	1⅞	1/16	4	138	34
Kelly-Springfield K35–2½	4	¼	1	1/16	V	7	1½	13	1½	55½	1		16¾	1⅞	1/16	4	16¾	1⅞	1/16	4	138	34
Kelly-Springfield K38–2½	4	¼	1	1/16	V	7	1½	13	1½	55½	1		17⅜	1⅞	1/16	4	17⅜	1⅞	1/16	4	138	34
Kelly-Springfield K40–3½	4	¼	1¼	1/16	V	5 1/16	1⅝	24	1½	63⅜	1		21	2⅞	1/16	4	21	2⅜	1/16	4	145	38
Kelly-Springfield K41–3½	4	¼	1¼	1/16	V	5 1/16	1⅝	24	1½	60⅝	1		3 1/16	4½	¼	12	58	2½	1/16	2	144	36
Kelly-Springfield K42–3½	4	¼	1¼	1/16	V	5 1/16	1⅝	24	1½	60⅝	1		27½	2¾	¼	4	27½	2¾	¼	4	144	36
Kelly-Springfield K50–5	4	¼	1¼	1/16	V	5 1/16	1⅝	24	1½	63⅜	1		21	2⅞	1/16	4	21	2⅜	1/16	4	145	38
Kelly-Springfield K60–6	4	¼	1¼	1/16	V	5 1/16	1⅝	24	1½	63⅜	1		21	2⅞	1/16	4	21	2⅜	1/16	4	145	38
Keystone 40–2	3	¼	1	1/16	V	8	2⅛	8	2⅛	38	1	F	50½	3	1/16	1	46¾	2	1/16	1	124	33
Kimball AB–2	3	¼	1¼	1¾	V	6	1½			39	2	F	45	2	¼	2	45	2	¼	2	135	34
Kimball AC–2½	3	¼	1¾	1¾	V	6	1½			39	2	F	22½	2¼	¼	4	22½	2¼	¼	4	152	34
Kimball AK3	3	¼	1¼	1¾	V	6	1½			39	2	F	22½	2¼	¼	4	22½	2¼	¼	4	152	34
Kimball AE–4	3	¼	1½	1¾	V	9	1¾			42	2	F	56	2½	¼	2	56	2½	¼	2	171	36
Kimball AF–5	3	¼	1½	1¾	V	9	1¾			42	2	F	69	3	¼	2	69	3	¼	2	171	36
Kissel 1 Ton	3	1/16	....	1¼	....	12¼	1¾	10	1½	46¾	2	F	11	3	¼	4	11	3	¼	4	101¼	34
Kissel-Utility 1½	3	1/16	....	1¼	....	12¼	1¾	10	1½	46¾	2	F	19	2	1/16	4	19	2	1/16	4	120	34
Kissel-Freighter 2	3	1/16	....	1¼	....	12¼	1¾	10	1½	49	2	F	14	3½	¼	4	14	3½	¼	4	144	34
Kissel-Heavy-Duty–3½	3	1/16	....	1¼	....	13¾	1¾	10	1½	52¼	2	F	56	2½	1/16	2	56	2½	1/16	2	156	36
Kissel-Goliath 5	3	1/16	....	1¼	....					55	2	F	56	2½	1/16	2	56	2½	1/16	2	168	36
Kleiber 1	3	1/16	1¼	1¾	....	13	1½	16	1¼	36	¾	....	12	3¼	4	4	12	3¼	¼	4	120	34
Kleiber 1½	3	1/16	1¼	1¾	....	13	1½	16	1¼	38	1¼	....	45	3¼	4	2	12	3¼	¼	2	132	34
Kleiber 2	3	1/16	1¼	1¾	....	13	1½	16	1¼	40	1¼	....	13½	3½	4	4	13½	3½	¼	4	144	34
Kleiber 2½	3	1/16	1¼	1¾	....	13	1¾	16	1¼	40	1¼	....	52	3½	4	2	13½	3½	¼	2	150	34
Kleiber 3½	3	1/16	1¼	1¾	....	13	1¾	16	1¼	40	1¼	....	16	3¾	4	4	16	3¾	¼	4	156	38
Kleiber 5	4	¼	1½	1¾	....	13	1¾	16	1¼	43	1¼	....	18	4	4	4	18	4	¼	4	168	38
Koehler D–1½	3	1/16	1	1¼	V	9¼	2	12½	2	37½	1¼	....	40	1¾	1/16	2	40	1¾	1/16	2	113¼	34
Koehler M–2½	4	1/16	1¼	1¼	V	5¼	1⅝	5¼	1¼	40¼	1¾	....	13	3½	¼	4	13	3½	¼	4	141¾	34
Koehler MCS–2½	4	1/16	1¼	1¼	V	5¼	1⅝	5¼	1¼	40¼	1¾	....	13	3½	¼	4	13	3½	¼	4	129¾	34
Koehler F–3½	4	1/16	1¼	1¼	V	9	1⅝	5¼	1¼				15½	3¾	¼	4	15½	3¾	¼	4	139½	34
Koehler MT–5—Tractor 5	4	1/16	1¼	1¼	V	5¼	1⅝	5¼	1¼	40¼	1¾	....	13	3½	¼	4	13	3½	¼	4	....	34
Lange B	3	1/16	1	1⅝	V	3½	2¼	11	2	36½	¾	F	30	2	¼	2	18	3	¼	4	114	37
Lange E–2½	3	¼	1	1⅝	V	9	1½	15½	1½	42	1½	F	18	3½	¼	4	18	3½	¼	4	138	33
Larrabee U–1½	3	1/16	1	....	V	9	2	9	2	38	5/8	V	48	2	¼	2	48	2	¼	2	108	34
Larrabee A,B & L–'20–3½	3	1/16	1¼	....	V	9	1½	6	1¼	36	1½	....	60	2½	¼	2	60	2½	¼	2	168	36
Larrabee C,D & K–'20–2½	3	1/16	1¼	....	V	8½	2	17½	2	44	2	F	54	2¼	¼	2	54	2¼	¼	2	150	36
Larrabee W–5	3	1/16	1½	....	V	6	1¼	6	1¼	36	1¼	F	72	3	¼	2	72	3	¼	2	152	36
Larrabee T	3	1/16	1¼	....	V	9	1½	6	1¼	36	1½	F	72	3	¼	2	72	3	¼	2	157	36

Replacement Table—Continued

Name, Model and Tonnage	ENGINE												BRAKE LINING								FRAME	
	Piston Rings		Carburetor			Upper Hose		Lower Hose		Fan Belt			Service				Emergency				Length	Width
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Over All
Luedinghaus K2	3	1/4	1 1/4	1 11/16	....	9	1 1/4	5	1 1/4	.....	1 1/2	F	53.4	2 1/2	1/4	2	38 1/2	2 1/2	1/4	2	120	34
Luedinghaus K2–LS	3	1/4	1 1/4	1 11/16	....	9	1 1/4	5	1 1/4	.....	1 1/2	F	53.4	2 1/2	1/4	2	38 1/2	2 1/2	1/4	2	145 1/2	34
Maccar L–1½	3	1/16	1 1/4	1 5/8	V	3 1/4	1 1/2	10	1 1/4	30 3/4	3/4	F	11 5/8	3 1/4	1/4	4	11 5/8	3 1/4	1/4	4	128 1/8	34
Maccar H–2, 2½	4	1/4	1 1/4	1 5/8	V	9 1/2	1 1/2	15 1/2	1 1/2	41 1/2	1 1/2	F	13 1/16	3 1/2	1/4	4	13 1/16	3 1/2	1/4	4	141 1/2	34
Maccar HA—HA	4	1/4	1 1/4	1 5/8	V	11 1/4	1 1/2	17	1 1/2	41 1/2	1 1/2	F	13 1/16	3 1/2	1/4	4	13 1/16	3 1/2	1/4	4	143 5/8	34
Maccar M–3	4	1/4	1 1/4	1 5/8	V	11 1/4	1 1/2	15 1/2	1 1/2	41 1/2	1 1/2	F	14 3/4	3 3/4	1/4	4	14 3/4	3 3/4	1/4	4	155 1/2	34
Maccar G	4	1/4	1 1/2	7/8	V	10 1/2	2	20 1/2	2	40 3/4	2	F	18	4	1/4	4	18	4	1/4	4	166 5/8	37 1/2
MacDonald A–7½	4	1/4	1 1/4	....	V	12	2	21	1 1/4	35	2	F	70	3	1/4	1	34	3	1/4	1	.....	.....
Mack AB–1½, 2, 2½–Ton–Chain	4	1/16	1 1/4	1 1/2	V	9 1/2	1 1/2	4 3/4	1 1/2	33	1 1/2	F	12 1/4	4	1/4	2	16 1/2	2 1/2	1/4	4	Opt	33 1/2
Mack Dual Reduction–1½–2,2½	4	1/16	1 1/4	1 1/2	V	9 1/2	1 1/2	4 3/4	1 1/2	33	1 1/2	F	18 1/4	3 1/2	1/4	4	12	6	1/4	2	Opt	33 1/2
Mack AB–Tractor 5 Ton	4	1/16	1 1/4	1 1/2	V	9 1/2	1 1/2	4 3/4	1 1/2	33	1 1/2	F	12 1/4	4	1/4	2	16 1/2	2 1/2	1/4	4	77	33 1/2
Mack AC–3½ to 7½ Ton	4	1/4	1 1/2	1 1/2	V	5 3/4	2 1/4	4 3/4	1 1/2	96	1	V	16 1/8	3	1/4	4	20 1/2	3 1/2	1/4	4	Opt	37 1/2
Mack AC–Tractor 7 to 15 Ton	4	1/4	1 1/2	1 1/2	V	5 3/4	2 1/4	4 3/4	1 1/2	96	1	V	16 1/8	3	1/4	4	20 1/2	3 1/2	1/4	4	87	37 1/2
Master JI–1½	4	1/4	1 1/4	2	H	13 1/2	2	12 1/2	1 1/4	30 1/2	1	F	74 1/2	2 1/2	1/8	1	74 1/2	2 1/4	1/4	1	117 3/4	34 1/2
Master JW–1½	4	1/4	1 1/4	11/16	V	13 1/2	12	12 1/2	1 1/4	30 1/2	1	F	12	3 1/4	1/4	2	12	3 1/4	1/4	2	117 3/4	34 1/2
Master M–2½	4	1/4	1 1/4	11/16	V	13 1/2	2	12 1/2	1 1/4	33	1 1/4	F	74	2 1/2	1/8	1	74 1/2	2 1/4	1/4	1	117 3/8	34
Master O 2½	4	1/4	1 1/4	11/16	V	13 1/2	2	11 1/2	1 1/4	33	1 1/4	F	75 1/2	2 1/2	1/8	1	74 1/2	2 1/4	1/4	1	156 3/8	34
Master W–2½	4	1/4	1 1/4	11/16	V	13 1/2	2	12 1/2	1 1/4	31	1 1/4	F	13 1/4	3 1/2	1/4	2	13 1/4	3 1/2	1/4	2	117 3/8	34
Master WL–2½	4	1/4	1 1/4	11/16	V	13 1/2	2	12 1/2	1 1/4	31	1 1/4	F	13 1/4	3 1/2	1/4	2	13 1/4	3 1/2	1/4	2	156 3/8	34
Master D–2½	4	1/4	1 1/4	11/16	V	13 1/2	2	12 1/2	1 1/4	35	1 1/4	F	8 5/8	4 1/2	1/16	2	54 1/16	3	1/16	2	117 3/8	34
Master DL–2½	4	1/4	1 1/4	11/16	V	13 1/2	2	12 1/2	1 1/4	35	1 1/4	F	8 5/8	4 1/2	1/16	2	54 1/16	3	1/16	2	156 3/8	34
Master T–6 Tractor	4	1/4	1 1/4	11/16	V	13 1/2	2	12 1/2	1 1/4	33	1 1/2	F	74 1/2	2 1/2	1/8	1	74 1/2	2 1/4	1/4	1	72 1/8	34
Master A–3½	4	1/4	1 1/2	11/16	V	13 1/2	2	15	1 1/4	35	2	F	16	3 3/4	1/4	2	16	3 3/4	1/4	2	147 3/4	36 1/2
Master AL–3½	4	1/4	1 1/2	11/16	V	13 1/2	2	15	1 1/4	35	2	F	16	3 3/4	1/4	2	16	3 3/4	1/4	2	183 3/4	36 1/2
Master E–3½	4	1/4	1 1/2	11/16	V	13 1/2	2	15	1 1/4	35	2	F	11	6	1/4	2	25	4	1/4	4	147 3/4	36 1/2
Master EL–3½	4	1/4	1 1/2	11/16	V	13 1/2	2	15	1 1/4	35	2	F	11	6	1/4	2	25	4	1/4	4	183 3/4	36 1/2
Master B–5	4	1/4	1 1/2	1 11/16	V	13 1/2	2	15	1 1/2	37	2	F	18	4	1/4	2	18	4	1/4	2	162 7/8	39
Master BL–5	4	1/4	1 1/2	1 11/16	V	13 1/2	2	15	1 1/2	37	2	F	18	4	1/4	2	18	4	1/4	2	186 7/8	39
Master F–5	4	1/4	1 1/2	1 11/16	V	13 1/2	2	15	1 1/2	37	2	F	11	6	1/4	2	25	4	1/4	4	162 7/8	39
Master FL–5	4	1/4	1 1/2	1 11/16	V	13 1/2	2	15	1 1/2	37	2	F	11	6	1/4	2	25	4	1/4	4	186 7/8	39
Master DT–6 Tractor	4	1/4	1 1/4	2	H	13 1/2	2	12 1/2	1 1/4	35	1 1/4	F	8 5/8	4 1/2	1/16	2	54 3/16	3	1/16	2	72 1/8	43
Maxwell 1½	3	1/16	1	1	V	6 1/4	2 1/8	7 3/4	2 1/8	44 1/2	1 1/2	....	16	1 3/4	1/16	4	16	1 3/4	1/16	4	102	36
Menominee HT–1	3	1/4	1	1 1/2	....	.....	.....	.....	.....	.....	.....	....	12	3 1/4	1/4	8	.....	.....	.....	.....	104	32
Menominee H–1½	3	1/4	1 1/4	1 3/4	....	.....	.....	.....	.....	.....	.....	....	13 1/2	3 1/2	1/4	8	.....	.....	.....	.....	122	32
Menominee D–2	3	1/4	1 1/4	1 3/4	....	.....	.....	.....	.....	.....	.....	....	13 1/2	3 1/2	1/4	8	.....	.....	.....	.....	146	32
Menominee G–3½	3	1/4	1 1/2	2	....	.....	.....	.....	.....	.....	.....	....	16	3 1/2	1/4	8	.....	.....	.....	.....	149	36
Menominee J–5	3	1/4	1 1/2	2	....	.....	.....	.....	.....	.....	.....	....	18 1/2	4	1/4	8	.....	.....	.....	.....	149	38
Menominee HT–1	3	1/4	1	1 1/2	....	9 1/4	1 3/4	10 1/2	1 1/4	33 3/4	1 1/4	F	47 1/16	2 1/2	1/16	2	33 1/4	2 1/2	1/16	2	102 3/4	32
Menominee H–1	3	1/4	1	1 3/4	....	9 1/4	1 3/4	10 1/2	1 1/4	33 3/4	1 1/4	F	47 1/16	2 1/2	1/16	2	33 1/4	2 1/2	1/16	2	124	32
Menominee D–2	3	1/4	1 1/4	1 3/4	....	3	1 3/4	3	1 1/2	37 3/4	2	F	57 1/2	2 1/2	1/16	2	42 1/2	2 1/2	1/16	2	131 1/2	32
Menominee G–3½	3	1/4	1 1/4	1 3/4	....	3	1 3/4	3	1 1/2	37 3/4	2	F	57 1/2	2 1/2	1/16	2	42 1/2	2 1/2	1/16	2	149	36
Menominee J–5	3	1/4	1 1/2	2	....	3	1 3/4	3	1 3/4	40 3/4	2	F	69 1/16	3 1/2	1/16	2	52	2 1/2	1/16	2	149	38
Moline 10	3	1/16	....	1 1/4	H	10 1/2	2 1/4	4 1/2	2 1/4	.....	.....	F	21	2 1/2	1/16	2	20	2	1/16	2	108	32
Moreland 21B–1½	3	1/16	1 1/4	1 1/2	H	9	1 1/2	13	1 1/2	42	1 1/2	F	12	3 1/4	1/4	4	12	3 1/4	1/4	4	132	34
Moreland 21C–2½	3	1/16	1 1/4	1 1/2	H	9	1 1/2	13	1 1/2	42	1 1/2	F	12	3 1/4	1/4	4	12	3 1/4	1/4	4	132	34
Moreland 21H–4	3	1/16	1 1/4	1 1/2	H	9	1 1/2	13	1 1/2	42	1 1/2	F	13 1/2	3 1/2	1/4	4	13 1/2	3 1/2	1/4	4	156	38
Napoleon 9–1	3	1/16	1	1/16	H	6 1/2	2 1/4	14	2 1/4	39	1	F	21	4	1/16	1	30	2 1/2	1/16	1	100 3/4	35 1/4
Napoleon 11–1½	3	1/16	1	1/16	H	6 1/2	2 1/4	14	2 1/4	39	1	F	21	4	1/16	1	30	2 1/2	1/16	1	100 3/4	35 1/4
Nash 2018–1–1½	4	1/4	1 1/4	1 1/4	....	3	1 1/2	7 3/4	1 1/4	36	1	F	49 1/8	2	1/16	2	20 7/16	2 1/2	1/16	1	104 1/2	30 1/2
Nash 3018–2–2½	4	1/4	1 1/4	1 1/4	....	3	1 1/2	.....	.....	44	1	F	50 5/8	3	1/16	2	20 1/16	2 1/2	1/16	1	118 1/4	31 1/2
Nash 4017-2-2½	3	1/4	1 1/4	1 1/4	....	7	1 1/2	.....	.....	44	2	F	49 1/4	2 1/2	1/4	4	25 1/16	2 1/2	1/4	1	117 1/8	38 1/8
Nelson & LeMoon G–2	4	1/4	1 1/4	1/16	....	.....	.....	.....	.....	.....	.....	....	12	3 1/4	1/4	2	12	3 1/4	1/4	2	Opt	.....
Nelson & LeMoon G–3	4	1/4	1 1/4	1/16	....	.....	.....	.....	.....	.....	.....	....	12	3 1/4	1/4	2	12	3 1/4	1/4	2	Opt	.....
Nelson & LeMoon G–4	4	1/4	1 1/4	1/16	....	.....	.....	.....	.....	.....	.....	....	16 1/2	3 3/4	1/4	2	16 1/2	3 3/4	1/4	2	Opt	.....
Nelson & LeMoon G–5	4	1/4	1 1/2	1/16	....	.....	.....	.....	.....	.....	.....	....	18	4	1/4	2	18	4	1/4	2	Opt	.....
Netco DK–2	3	1/16	1 1/4	1 1/16	V	12	1 1/2	16	1 1/4	40 1/16	1 1/2	F	13 3/16	3 1/2	1/4	4	13 3/16	3 1/2	1/4	4	108 1/2	34 1/2
Netco HL–2½–3	3	1/16	1 1/2	1 1/16	V	13	1 1/2	16	1 1/4	41 1/4	1 1/2	F	13 1/16	3 1/2	1/4	4	13 1/16	3 1/2	1/4	4	142	34 1/4
Niles E–2	3	1/16	1 3/4	1 3/4	V	8	1 1/4	11	1 1/4	30	3/4	....	12	3 1/4	1/4	2	12	3 1/4	1/4	2	147	56
Noble B–30–1½	4	1/16	1	1 1/16	....	16 1/2	1 1/4	7	1 7/8	34 1/4	1 7/8	....	43	2	1/4	2	43	2	1/4	2	136	34
Noble C–40–2	4	1/4	1 1/4	1 1/16	....	12	1 1/4	9	2	34 1/4	1 7/8	....	43	2	1/4	2	43	2	1/4	2	148	34
Noble D–50–2½	4	1/4	1 1/4	1 1/16	....	12	1 1/4	9	2	34 1/4	1 7/8	....	51	2 1/4	1/4	2	51	2 1/4	1/4	2	172	34
Noble E–70–3½	4	1/4	1 1/4	1 1/16	....	16	1 1/4	14 1/2	2	34 1/4	1 7/8	....	57	2 1/2	1/4	2	57	2 1/2	1/4	2	172	36
Northway B–2	3	1/16	1 1/4	1 3/4	V	5 1/4	2 1/4	13 7/8	1 1/4	46 22/44	5/8	V	50 1/2	2 1/4	1/4	2	50 1/2	2 1/4	1/4	2	133	33
Northway B–3	3	1/16	1 1/16	1 3/4	V	5 1/4	2 1/4	13 7/8	1 1/4	46 22/44	5/8	V	54	2 1/2	1/4	2	54	2 1/2	1/4	2	173	34 3/8
Norwalk 25E–1	3	1/16	1	1/16	V	9	2 1/4	19	2 1/4	29	3/4	F	16 1/2	2 1/4	1/16	2	16 1/2	1 1/2	1/16	2	100	36
Norwalk 35E–1½	3	1/16	1	1/16	V	9	2 1/4	19	2 1/4	29	3/4	F	16 1/2	2 1/4	1/16	2	16 1/2	1 1/2	1/16	2	124	34
Norwalk 35E Spec.–1½	3	1/16	1	1/16	V	11	2	18	1 1/2	36	2	F	19	2	1/4	2	19	2	1/4	2	124	34
Ogden A–1	3	1/16	1	1	V	12	2	6	2	44	3/4	V	11	2 1/2	1/4	4	11	2 1/2	1/4	4	108	33 1/4
Ogden D–1½	3	1/16	1	1	H	13	2	12	2	44	3/4	V	10 37/64	3	1/4	4	10 37/64	3	1/4	4	120	33 1/4
Ogden E–2½	3	1/16	1 1/4	2	H	10	1 5/8	14	1 1/16	30	1 1/4	F	52	2 1/4	1/4	1	52	2 1/4	1/4	1	144	33 1/4
Ogden F–3½	3	1/4	1 1/4	2	H	11	1 1/2	16	1 1/2	36	1 1/2	F	15 5/8	3 3/4	1/4	4	10 3/8	3 3/4	1/4	4	168	33 1/4
Ogden G–5	3	1/4	1 1/2	3	....	9	2	18	2	40	2	F	11	6	1/4	2	25	4	1/4	4	168	33 1/4
O. K.–1½	4	1/4	1 1/4	1 11/16	V	12	2	13 1/2	1 1/4	36	2	F	53	2 1/2	1/16	2	38	2 1/2	1/16	2	117	34
O. K.–2½	4	1/4	1 1/4	1 11/16	V	12	2	13 1/2	1 1/4	36	2	F	62	2 1/2	1/16	2	48	2 1/2	1/16	2	121	35
O. K.–3½	4	1/4	1 1/4	1 11/16	V	12	2	13 1/2	1 1/4	38	2	F	62	2 1/2	1/16	2	48	2 1/2	1/16	2	133	34
Old Reliable A–1½	3	1/4	1 1/4	1 1/4	....	.....	.....	.....	.....	.....	.....	....	48	2 1/2	1/4	1	48	2 1/2	1/4	1	105	32
Old Reliable B–2½	3	1/4	1 1/4	1 1/4	....	.....	.....	.....	.....	.....	.....	....	54	2	1/4	1	54	2	1/4	1	144	32
Old Reliable C–3½	3	1/4	1 1/4	1 1/4	....	.....	.....	.....	.....	.....	.....	....	60	2 1/2	1/4	1	60	2 1/2	1/4	1	150	32
Old Reliable D–5	3	1/4	1 1/2	1 1/2	....	.....	.....	.....	.....	.....	.....	....	72	3	1/4	1	72	3	1/4	1	156	34
Old Reliable K. L. M.–7	3	1/4	1 1/2	1 1/2	....	.....	.....	.....	.....	.....	.....	....	54	3 1/2	1/4	1	60	4	1/4	1	158	36
Oldsmobile T–1	3	1/16	1 1/16	1 3/8	V	5	1 1/4	11	1 1/4	32 3/8	3/4	V	42 1/4	2	1/2	1	41 1/16	2	1/2	1	92 5/8	34
Olympic 2½	4	1/4	1 1/4	1 1/2	V	13	2	12	1 1/4	34	2	F	13 1/2	3 1/2	1/4	2	13 1/2	3 1/2	1/4	2	Opt	32 1/2
Oneida B	3	1/16	1 1/4	1 1/2	H	9 1/2	1 1/4	9 1/2	1 1/4	38 1/2	2	F	48	2 1/2	1/16	2	34	2 1/2	1/16	2	114	34
Oneida C	3	1/16	1 1/4	1 1/2	H	9 1/4	1 1/4	9 1/2	1 1/4	38 1/2	2	F	58	2 1/2	1/16	2	43	2 1/2	1/16	2	138	34
Oneida D	3	1/4	1 1/4	1 1/2	H	7	1 1/2	9 1/2	1 1/2	40	2	F	16	3 3/4	1/4	4	16	3 3/4	1/4	4	157	36
Oneida E	3	1/4	1 1/4	1 1/2	H	7 1/2	1 3/4	9 1/2	1 1/2	40	2	F	18	4	1/16	4	18	4	1/16	4	177	38
Packard EC	3	1/4	1 5/8	1 3/4	V	6 1/4	1 1/2	10 3/8	1 1/2	41 1/16	3/4	V	7 13/16	4 3/4	1/4	2	14	2	1/16	4	132	31 3/4
Packard ED	3	1/4	1 5/8	1 3/4	V	6 1/4	1 1/2	10 3/8	1 1/2	43 3/16	3/4	V	9 5/16	4 3/4	1/4	2	17	3	1/16	4	144	39
Packard EF	3	1/4	1 5/8	1 3/4	V	6 1/4	1 1/2	10 3/8	1 1/2	43 3/16	3/4	V	9 5/16	6 1/2	1/4	2	18 3/4	3 1/2	1/16	4	144	39
Packard EX	3	1/4	1 5/8	1 3/4	V	6 1/4	1 1/2	10 3/8	1 1/2	43 3/16	3/4	V	9 5/16	6 1/2	1/4	2	14	2	1/16	4	132	31 3/4
Paige 54–20–2½	3	1/4	....	1 1/4	....	10 1/2	1 1/2	10 1/2	1 1/2	37 5/8	1 1/4	F	49 5/8	2 1/4	1/4	2	49 5/8	2 1/4	1/4	2	126	33
Paige 51–18–3½	3	1/4	....	1 1/4	....	13	1 1/2	13	1 1/2	37 5/8	2	F	15 5/8	3 3/4	1/4	4	15 5/8	3 3/4	1/4	4	144	35
Paige 52–19–1½	3	1/16	....	1 1/4	....	8	1 1/4	12	1 1/4	36	2	F	11 1/2	3 1/4	1/4	4	11 1/2	3 1/4	1/4	4	126	33
Parker G1–2½	3	1/4	1 1/4	1 1/2	V	19	1 3/4	16	1 1/2	38	2	F	10 3/4	5	1/4	2	19	2 1/2	1/4	4	127	33
Parker C221	3	1/4	1	1 1/4	V	16	1 1/4	12 1/2	1 1/4	39	1 1/2	F	10 1/2	3	1/4	4	10 1/2	3	1/4	4	95	33
Parker J20–3½	3	1/4	1 1/4	1 1/2	V	19	1 3/4	16 1/2	1 1/2	38	2	F	10 3/4	5	1/4	2	19	3 1/2	1/4	4	139 1/2	33
Parker M20–5	3	1/4	1 1/2	1 3/4	V	14	1 3/4	18	1 3/4	40 1/2	2	F	10 3/4	5	1/4	2	24 1/2	4	1/4	4	145	37
Patriot Revere–1	3	1/16	1 1/16	5/8	H	8	2	9	2	39	1 1/4	F	40 1/2	1 3/4	1/16	1	40 1/2	1 3/4	1/16	1	93	66

Replacement Table—Continued

Name, Model and Tonnage	ENGINE												BRAKE LINING								FRAME	
	Piston Rings		Carburetor			Upper Hose		Lower Hose		Fan Belt			Service				Emergency					
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Length Back of Driver's Seat	Width Over All
Patriot Lincoln Special–2	3	3/16	1 2/16	3/8	V	6	1 1/4	8	1 1/2	37	1 3/4	F	40 1/2	1 3/4	1/16	1	40 1/2	1 3/4	1/16	1	113	67 1/2
Patriot Washington Special–3	3	1/4	1 1/16	3/8	V	11	1 1/2	10	2	39	2	F	58	2 1/2	1/4	1	43	2 1/2	1/4	1	150	67 1/2
Pierce Arrow–2–X–5	3	1/4	1 1/16	1 5/8	V	16 3/8	2 3/8	14 1/4	2 1/8	43 1/2	1 1/2	F	22 1/4	2 1/4	1/4	1	22 1/4	2 1/4	1/4	1	125 1/16	34 1/8
Pierce Arrow–3½–W–2	3	1/4	1 1/16	1 7/8	V	11	2 3/8	15 1/2	2 1/8	43 1/2	1 1/2	F	9 11/16	6	1/4	2	18	4 3/4	1/4	2	133 1/4	38 1/8
Pierce Arrow–5–R–10	3	1/4	1 1/16	1 7/8	V	13	2 3/8	15 1/2	2 1/8	43 1/2	1 1/2	F	9 11/16	6	1/4	2	20 7/8	4 3/4	1/4	2	139 1/4	38 1/8
Pioneer 59AA–1	3	1/4	1 1/4	1 1/2	V	2	1 1/2	2	1 1/4	35	1	F	14	1 3/4	1/4	2	14	1 3/4	1/4	2	102	30
Pittsburgher 2½	3	1/4	1 1/4	1 1/4	V	2	1 1/2	2	1 1/4	37	1	F	52	2 1/4	1/4	4	52	2 1/4	1/4	4	136	33
Rainier R–8–2	3	1/16	1 1/16	33/64	V	5	1 1/2	12	1 1/4	37	1	F	44 1/2	2	1/4	2	44 1/2	2	1/4	2	.....	34
Rainier R6–1½	3	1/16	1 1/16	33/64	V	9 3/4	1 1/2	13	1 1/2	31 1/2	1 1/4	F	19	2	1/4	2	19	2	1/4	2	113	34
Rainier R–19–1	3	1/16	1 1/16	33/64	V	8 1/2	1 1/2	14 3/4	1 1/2	41	1 1/2	F	19	2	1/4	2	19	2	1/4	2	100	34
Rainier R–11–¾	3	1/16	1 1/16	33/64	V	9	1 1/2	14	1 1/2	41	1 1/2	F	11 1/4	3	1/4	2	11 1/4	3	1/4	2	90	34
Ranger TK–22–1½	3	1/16	1 1/16	1 1/2	V	11 3/4	1 1/2	14 1/2	1 1/4	42	1 1/2	F	11 1/2	3	M	2	11 1/2	3	1/4	2	106 1/2	33
Reliance 10A–1½	4	1/4	1 1/16	3/8	H	10 1/2	2	10	1 1/4	33 3/4	1	F	17	2	1/16	4	17	2	1/16	4	122	32
Reliance 20B–2½	4	1/4	1 1/4	3/8	H	10 1/2	2	13 1/2	1 3/8	35	2	F	17	2	1/16	4	17	2	1/16	4	127	32
Reo F—1500–2500 lbs.	3	1/16	1	1	V	5 1/2	1	5 1/2	1	35	2	F	43	2 1/4	1/16	4	39 5/8	2	1/16	4	82	30
Republic 10-1-10E-1	3	1/16	1	.....	V	12 1/4	2	6	2	39 1/16	7/8	F	21 1/4	2 1/2	1/4	4	19 3/4	2	1/4	4	.....	34
Republic 11X–1½	3	1/16	1	.....	V	12 1/4	2	6	2	40 1/16	1 1/4	F	25 1/4	2 1/2	1/4	4	24 1/4	2 1/4	1/4	4	118	34
Republic 19–2½	3	1/16	1 1/4	.....	V	8	1 1/2	11 3/4	1 1/4	40 1/16	1 1/4	F	25 1/4	2 1/2	1/4	4	24 1/2	2 1/4	1/4	4	121	34
Republic 20–3½	3	1/16	1 1/4	.....	V	7 1/4	1 3/4	5 1/2	1 1/4	32 1/16	1 1/4	F	27 3/4	3 1/2	1/16	4	30 1/16	2 1/4	1/16	4 1/2	146	37
Republic Rapid Transit–¾	3	1/16	1	.....	V	12	2 1/4	18 1/2	2 1/4	36 1/4	1 1/2	F	19	2	1/16	4	18	2	1/16	4	95	31
Rowe CW–1½	3	1/4	1 1/4	.....	V	10 1/2	1 3/4	10 1/2	1 1/2	31 11/16	1	F	19	2	1/16	4	19	2	1/16	4	113	33
Rowe CDW–2	3	1/4	1 1/4	.....	V	10 1/2	1 3/4	10 1/2	1 1/2	32 1/2	1 1/8	F	45	2	1/4	8	45	2	1/4	8	123	33
Rowe GSW–3	3	1/4	1 1/4	.....	V	20	1 3/4	15 1/2	1 1/2	36 1/4	2	F	51 1/2	2 1/2	1/4	4	51 1/2	2 1/2	1/4	4	140	33
Rowe HW–4	3	1/4	1 1/4	.....	V	20	1 3/4	15 1/2	1 1/2	36 1/2	2	F	56 1/2	2 1/2	1/4	4	56 1/2	2 1/2	1/4	4	146	36
Rowe FW–5	3	1/4	1 1/4	.....	V	20	1 3/4	15 1/2	1 1/2	36 1/4	2	F	68	3	1/4	4	68	3	1/16	4	153	38 1/2
Rowe GPW–3	3	1/4	1 1/4	.....	V	10	1 3/4	6	1 3/4	37	2	F	18	2	1/16	4	18	2	1/16	4	152	33
Rumely A–1½	3	1/16	1 1/16	1 3/8	V	10 1/2	1 3/4	10 1/2	1 1/4	35 23/64	2	F	37	2	1/16	4	35 3/4	1 3/4	1/16	4	122	34
Samson 15–¾	4	1/16	1 1/16	1 3/8	V	6 1/2	1 3/4	7 3/4	1 1/4	37 23/64	2	F	43 3/8	2	1/16	4	37 3/4	1 3/4	1/16	4	108 1/4	39 1/2
Samson 25–1¼	3	1/16	1 1/16	1 3/8	V	6 1/2	1 1/4	7 3/4	1 1/4	37 23/64	2	F	51 1/2	2 1/2	1/4	4	51 1/2	2 1/2	1/4	4	108 1/4	39 1/2
Sanford 25–2½	3	1/16	1 1/4	1 1/4	H	11	2	14	1 1/4	37 1/2	2	F	56	2 1/2	1/4	4	56	2 1/2	1/4	4	144	35
Sanford W35–2½	3	1/16	1 1/4	1 1/4	H	10 1/2	2	14	1 1/4	37 1/2	2	F	69	3	1/4	4	69	3	1/4	4	145	35
Sanford W50–5	3	1/16	1 1/4	1 1/4	H	10 1/2	2	13 1/2	1 1/4	39 1/4	7/8	F	8 1/4	3	1/4	4	8 1/4	3	1/4	4	145	35
Schacht F–2	3	1/16	1 1/4	1 1/4	H	10 1/2	2	13 1/2	1 1/4	39 1/4	7/8	F	8 1/4	3	1/4	4	8 1/4	3	1/4	4	140	35 3/4
Schacht F–3	4	1/4	1 1/4	1 1/4	H	9 1/2	2 1/4	13	2 1/4	39 1/4	7/8	F	8 1/4	3 1/4	1/4	4	8 1/4	3 1/4	1/4	4	140	35 3/4
Schacht E–4	4	1/4	1 1/4	M	H	10	1 3/4	18	1 1/4	29 1/2	7/8	F	15 5/8	3	1/4	4	15	3	1/4	4	152	35 3/4
Schacht E–5	4	1/4	1 1/4	M	H	10 1/2	2	15	1 1/4	33 1/8	2	F	20 1/4	2 1/4	1/4	4	15	3	1/4	4	152	35 3/4
Schacht E–7	4	1/4	1 1/4	M	H	12 1/2	2	17	1 1/4	33 1/8	2	F	51 1/2	2 1/4	1/4	4	15 5/8	3	1/4	4	152	35 3/4
Schwartz A–1¼	4	1/4	1 1/4	1 1/16	H	12	2	.....	.....	38 3/8	2	F	69 1/2	3	1/4	4	20 1/4	2 1/4	1/4	4	.....	.....
Schwartz K–1½	3	1/16	1 1/16	1 1/16	V	11	2	12	1 1/4	41	1 1/2	F	11 1/16	3	1/4	4	51 1/2	3	1/4	4	120	34
Schwartz LS–L–LL–2½	4	1/4	1 1/4	1 1/16	V	10 1/2	2	5 1/2	1 1/4	31	1 1/2	F	13	3 1/4	1/4	4	69 1/2	3	1/4	4	.....	.....
Schwartz MS–M–ML–5	4	1/4	1 1/4	1 1/16	V	10 1/2	2	15 1/2	1 1/4	31	1 1/2	F	13	3 1/2	1/4	4	11 1/16	3	1/4	4	.....	.....
Selden Unit 30	4	1/4	1 1/4	1 1/16	V	12 1/2	2	20 1/2	1 1/4	34 1/4	2	F	13	3 1/2	1/4	4	13	3 1/2	1/4	4	114	34
Selden Unit 50	3	1/16	1 1/16	1 1/16	V	12	2	14 1/2	1 1/4	31 1/2	2	F	13	3 1/2	1/4	4	13	3 1/2	1/4	4	134	34
Selden Unit 31	3	1/16	1	1	V	12	2	.....	.....	40 3/8	2	F	15 5/8	3 3/4	1/4	4	15 5/8	3 3/4	1/4	4	176	34
Selden Unit 70	3	1/16	1 1/16	1 1/16	V	3 3/4	1 1/4	12	1 1/4	35 1/2	2	F	15 5/8	3 3/4	1/4	4	15 5/8	3 3/4	1/4	4	153	37 1/2
Selden Unit 51	3	1/16	1 1/16	1 1/16	V	3 3/4	1 1/4	5 1/2	1 1/4	37 3/4	2	F	17 11/16	4	1/4	4	17 11/16	4	1/4	4	209	37 1/2
Selden Unit 90	3	1/16	1 1/16	1 1/16	V	9	1 3/4	15 1/2	1 1/4	41	1 1/2	F	10 1/16	2 1/2	1/4	4	10 1/16	2 1/2	1/4	4	153	37 1/2
Service 12–¾	3	1/4	1 1/16	1 1/16	V	7	1 1/2	20 1/2	1 1/4	31	2	F	19 3/8	3 1/4	1/4	4	19 3/8	3 1/4	1/4	4	101 1/2	37 1/16
Service 15—1¼	3	1/4	1 1/16	1 1/16	V	13 1/2	2 1/2	14 1/2	1 1/4	31 1/2	2	F	12	3 1/4	1/4	4	12	3 1/4	1/4	4	101 1/2	37 1/16
Service 220-1½	3	1/16	1 1/16	1 1/16	V	10	1 3/4	2	1 1/4	40 3/8	2	F	12	3 1/4	1/4	4	12	3 1/4	1/4	4	109 1/2	34
Service 31–2	3	1/16	1 1/16	1 1/16	V	10	2	6	1 1/4	35 1/2	2	F	12	3 1/2	1/4	4	12	3 1/2	1/4	4	121 1/16	34
Service 36–2	4	1/4	1 1/16	1 1/16	V	10	2	8	1 1/4	37 3/4	2	F	13 1/2	3 3/4	1/4	4	13 1/2	3 3/4	1/4	4	121 1/16	34
Service 51–3	4	1/4	1 1/16	1 1/16	V	10	2	8	1 1/4	33	1	F	16	4	1/4	4	16	4	1/4	4	131 1/8	34
Service 71–3½	4	1/4	1 1/16	1 1/16	V	10	2	8	1 1/4	33	1 1/4	F	16	4	1/4	4	16	4	1/4	4	150 1/4	38
Service 76–4	4	1/4	1 1/16	1 1/16	V	10	2	8	1 1/4	33	1 1/4	F	18 1/2	4	1/4	4	18 1/2	4	1/4	4	145 3/4	38
Service 101–6	4	1/4	1 1/16	1 1/16	V	10	2	10	1 1/4	38 1/4	1 1/2	F	11	3	1/4	4	11	3	1/4	4	145 3/4	38
Signal NF–1	4	1/4	1 1/16	1 1/16	V	10	2	10	1 1/4	38 1/4	1 1/2	F	12	3 1/4	1/4	4	12	3 1/4	1/4	4	120	.....
Signal H 1½	4	1/4	1 1/16	1 1/16	V	7 1/4	1 1/2	12	1 1/4	39 3/4	1 1/2	F	13 1/2	3 1/2	1/4	4	13 1/2	3 1/2	1/4	4	120	34
Signal J–2½	3	1/16	1 1/16	1 1/16	V	8	1 1/2	9	1 1/4	30 1/2	1 1/4	F	16	3 3/4	1/4	4	16	3 3/4	1/4	4	126	34
Signal M 3½	3	1/16	1 1/16	1 1/16	V	5 1/2	1 1/2	12	1 1/4	30 1/2	1 1/4	F	4	3	1/4	4	4	3	1/4	4	168	38
Signal R–5	3	1/16	1 1/16	1 1/8	V	8	1 1/2	12	1 1/4	34 1/4	1 1/4	F	10 7/8	3 1/2	1/4	4	10 7/8	3 1/2	1/4	4	172	38
Standard I-K–1–1½	3	1/4	1 1/16	1 1/8	V	10 1/2	2	14 3/4	1 1/4	41	2	F	13 1/16	3 3/4	1/4	4	13 1/16	3 3/4	1/4	4	120	32
Standard 76–2½–3	3	1/16	1 1/16	1 1/16	V	12	2 5/16	12	1 1/8	39 1/4	1 1/4	F	15 5/8	4	1/4	4	15 5/8	4	1/4	4	122	32
Standard 66–3½–4	3	1/16	1 1/16	1 1/16	V	8	2 1/16	18	1 5/8	36 1/2	1 1/2	F	17 11/16	4	1/4	4	17	4	1/4	4	144	38
Standard 5K–5–7	3	1/16	1 1/16	1 1/16	V	10 1/2	2 1/8	19	1 5/8	42 1/4	2	F	13 11/16	3 1/2	1/4	8	11 3/4	3 1/2	1/4	8	144	38
Sterling 1½	3	1/4	1 1/4	1 1/16	V	12	2	19	1 1/2	38	1 1/2	F	13 3/8	3 1/2	1/4	8	13 3/8	3 1/2	1/4	8	120	33 1/2
Sterling 2	3	1/4	1 1/4	1 1/16	V	11	2	19	1 1/2	38	1 1/2	F	15 3/4	3 3/4	1/4	8	13 3/8	3 3/4	1/4	8	120	33 1/2
Sterling 2½	3	1/4	1 1/4	1 1/16	V	11	2	19	1 1/2	40 1/2	1 1/2	F	17 11/16	4	1/4	8	15 3/4	3 3/4	1/4	8	138	34
Sterling 3½	3	1/4	1 1/4	1 1/16	V	11	2	19	1 1/2	40 1/2	1 1/2	F	56 1/2	3 1/2	1/4	2	17 11/16	4	1/4	8	144	38
Sterling 5-Worm	3	1/4	1 1/4	1 1/16	V	14 5/8	2	19	1 1/2	40 1/2	1 1/2	F	56 1/2	3 1/2	1/4	2	34 11/16	8	1/4	2	158	38
Sterling 5-Chain	3	1/4	1 1/4	1 1/16	V	11	2	22	1 1/2	40 1/2	1 1/2	F	50 5/8	2	1/16	2	34 11/16	8	1/4	2	158	38
Sterling 7½	3	1/4	1 1/2	1 1/16	V	11	2	19	1 1/2	40 1/2	1 1/2	F	41 5/8	2	1/16	2	8	2	1/16	2	158	38
Stewart M7–2	3	1/4	1 1/2	1 1/16	V	11	2	19	1 1/2	40 1/2	1 1/2	F	48 1/2	2	1/16	2	22 3/4	2	1/16	2	132 3/4	32
Stewart M15–1	3	1/16	1	1	V	.....	.....	.....	.....	.....	.....	.....	60	3	1/16	2	8	2	1/16	2	99 1/2	32
Stewart M9–1½	3	1/16	1	1	V	.....	.....	.....	.....	.....	.....	.....	50 5/8	2	1/16	2	8	2	1/16	2	119 1/4	32
Stewart M10–3½	3	1/16	1	1	V	.....	.....	.....	.....	.....	.....	.....	60	3	1/16	2	8	2	1/16	2	139 3/4	32
Stewart M7X	3	1/4	1 1/16	1 3/8	V	18	1 1/4	15	1 1/4	38 1/2	1 3/4	F	16	1 3/4	1/16	2	8	2	1/16	2	132 3/4	32
Stewart M10X	3	1/4	1 1/16	1 3/8	V	18	1 1/4	15	1 1/4	39 1/4	1 1/2	F	16	2	1/16	2	16	2	1/16	2	138	32
Stoughton A–1	4	1/4	1	1	V	18	1 1/4	15	1 1/4	42	2	F	19	2	1/16	4	19	2	1/16	4	88	34
Stoughton B–1½	4	1/4	1 1/4	1 1/4	V	18	1 1/4	15	1 1/4	42	2	F	45	2	1/16	4	45	2	1/16	4	116	34
Stoughton D–2	4	1/4	1 1/4	1 1/4	V	18	1 1/4	15	1 1/4	42	2	F	52	2 1/4	1/16	4	52	2 1/4	1/16	4	116	34
Stoughton F–3	4	1/16	1 1/4	1 1/4	V	8 1/2	1 1/2	15	1 1/4	39 1/4	1 1/2	F	51 1/2	2 1/4	1/16	4	51 1/2	2 1/4	1/16	4	127	36
Super Truck 50	3	1/4	1 1/4	1 1/4	V	9 1/2	1 3/4	15	1 1/4	42	1 1/2	F	55 1/2	2 1/2	1/16	4	55 1/2	2 1/2	1/16	4	135	34
Super Truck 70	3	1/4	1 1/4	1 1/4	V	19	1 3/4	15	1 1/4	42	1 1/2	F	68	3	1/16	4	51 1/2	2 1/2	1/16	4	144	34
Super Truck 100	3	1/4	1 1/4	1 1/4	V	19 1/2	1 3/4	19	1 1/2	37 1/2	1 7/8	F	45	2 1/4	1/16	4	3	2 1/4	1/16	4	144	34
Superior D–1	3	1/4	1 1/2	1 1/4	V	6	1 3/4	19	1 1/2	37 1/2	1 7/8	F	54	2 1/2	1/16	4	44	2 1/2	1/16	4	97 3/4	34
Superior E–2	3	1/4	1 1/2	1 1/4	V	11	2	19	1 1/2	42	1 7/8	F	19 3/8	1 3/4	1/16	4	53 1/2	2 1/2	1/16	4	114	34
Thomart Speed	3	M	1 1/16	1 1/16	V	8 1/2	1 1/2	10	1 1/4	39	1	F	46	2	1/16	4	19 3/8	2	1/16	4	102	34
Tiffin GW–1½	3	1/16	1 1/16	1 1/16	V	9	1 1/4	15	1 1/4	29	1	F	52	2 1/4	1/16	4	46	2	1/16	4	114	34
Tiffin MW–2½	3	1/16	1 1/4	1 1/4	V	.....	.....	7 1/4	1 1/4	36 1/2	2	F	58	2 1/2	1/16	4	52	2 1/4	1/16	4	114	35
Tiffin F–35–3½	3	1/16	1 1/4	1 1/4	V	.....	.....	.....	.....	.....	.....	.....	68	3	1/16	4	58	2 1/2	1/16	4	138 1/2	32 3/4
Tiffin TW–5	3	1/16	1 1/4	1 1/4	V	.....	.....	.....	.....	.....	.....	.....	68	3	1/16	4	68	3	1/16	4	151	35 1/2
Tiffin UW–6	4	1/4	1 1/2	1 1/4	V	.....	.....	.....	.....	.....	.....	.....	68	3	1/16	4	68	3	1/16	4	156	38 1/2
Titan 3½	4	1/4	1 1/2	1 1/4	V	.....	.....	.....	.....	.....	.....	.....	60	2 1/4	1/16	4	14	2 1/4	1/16	2	156	38 1/2
Titan 5–6	4	1/4	1 1/2	1 1/4	V	.....	.....	.....	.....	.....	.....	.....	90	2 1/4	1/16	4	14	2 1/4	1/16	2	144	34
Titan 2½	4	1/4	1 1/2	1 1/4	V	.....	.....	.....	.....	.....	.....	.....	54	2 1/2	1/16	4	26	2 1/2	1/16	2	144	34
Tower J–1½	4	1/4	1 1/4	1 1/4	V	.....	.....	.....	.....	.....	.....	.....	11 3/4	3 1/4	1/16	4	11 3/4	3 1/4	1/16	4	144	32
Tower H–2½	3	1/16	1 1/4	1 1/4	V	.....	.....	.....	.....	.....	.....	.....	13 1/16	3 1/2	1/4	4	13 1/16	3 1/2	1/4	4	135 1/4	32 1/2
	3	1/16	1 1/4	1 1/4	V	.....	.....	.....	.....	.....	.....	.....									138 3/4	32 1/2

Replacement Table—Continued

Name, Model and Tonnage	ENGINE												BRAKE LINING								FRAME	
	Piston Rings		Carburetor			Upper Hose		Lower Hose		Fan Belt			Service				Emergency				Length	Width
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Over All
Tower G–3½	3	5/16	1½	1½									15 5/8	3¾	¼	4	15 5/8	3¾	¼	4	152 11/16	37
Traffic C–4000	1	5/16	1	5/16	H	10½	2	10	2	41¼	1¼	F	43½	2½	5/16	2	38	1¾	5/16	2	120¾	42
Traffic 6000	3	5/16	1	5/16	H	10½	2	10½	2	41¼	1¼	F									120¾	34
Traffic Speedboy	3	5/16	1	5/16	H	10½	2	10½	2	41¼	1¼	F	43½	2½	5/16	2	38	1¾	5/16	2	86	34
Transport 15–1	3	5/16	1	1	H	10¾	2	13	2	40 3/8	1	F	48	2	½	2	46 5/8	2	½	2	98 1/8	34
Transport 25–1½	3	5/16	1	1	V	12	2	12	2	36½	1¼	F	48½	2	5/16	2	46½	1½	5/16	2	100 1/8	34
Transport 35–2	3	5/16	1	1	V	10¾	2	13	2	40 3/8	2	F	11	3	5/16	2	46½	2½	5/16	2	116 1/8	34
Transport 60–3½	4	¼	1¼	1¼	V	9¼	2	10	1¼	32¾	2	F	10¼	3	5/16	2	48½	2½	5/16	2	152 1/8	34
Transport 75–5	4	¼	1¼	1¼	V	12	2	16	1¼	35 7/8	2	F	11 7/8	3	5/16	4	58	2½	5/16	2	150 1/8	36½
Traylor B–1½	4	¼	1	....	V	....	....	....	....	38	1	F	50	2	¼	2	50	2	¼	2	117	34
Traylor C–2–2½	4	¼	1¼	....	V	....	....	....	....	36	2	F	50	2	¼	2	50	2	¼	2	122	34
Traylor D–3–3½	4	¼	1¼	....	V	....	....	....	....	36	2	F	56½	2¼	¼	2	56½	2¼	¼	2	142	34
Traylor F–5–6	4	¼	1¼	....	V	....	....	....	....	37	2	F	59	2½	....	2	59	2½	....	2	165	35
Triangle AA–¾	3	5/16	1	1	H	17	2	17	2	34	1	F	22	2½	5/16	1	41	2	5/16	2	94	35
Triangle A–1½	3	¼	1	1	V	14	1¼	14½	1¼	39¼	1½	F	7	4	5/16	2	49	2	5/16	2	126	34
Triangle B–2½	3	¼	1¼	1¼	V	18	1½	18	1¼	39¼	1½	F	7	4	5/16	2	52	3	5/16	2	132	34
Triangle C–2	3	¼	1	1	V	14	1¼	14½	1¼	39¼	1½	F	7	4	5/16	2	52	3	5/16	2	129	34
Triumph HB–2½	4	¼	....	....	V	9	1¾	17	1¼	32½	2	F	46	2½	5/16	2	32	2½	5/16	2	120	34½
Triumph HC–2	4	¼	....	....	V	9	1¾	17	1¼	32½	2	F	46	2½	5/16	2	32	2½	5/16	2	120	34½
Ultimate A–2	4	¼	1¼	1⅝	V	11	2	8	1¼	34	2	F	20	2¼	¼	2	45	2	¼	2	126	32¾
Ultimate AJ2	4	¼	1¼	1⅝	V	11	2	8	1¼	34	2	F	20	2¼	¼	2	45	2	¼	2	126	32¾
Ultimate AJL–2	4	¼	1¼	1⅝	V	11	2	8	1¼	34	2	F	20	2¼	¼	2	45	2	¼	2	150	32¾
Ultimate B–3	4	¼	1¼	1⅝	V	11	2	8	1¼	34	2	F	51	2¼	¼	2	51	2¼	¼	2	144	32⅝
Ultimate BL3	4	¼	1¼	1⅝	V	11	2	8	1¼	34	2	F	51	2¼	¼	2	51	2¼	¼	2	192	32⅝
Ultimate D–5	4	¼	1¼	1⅝	V	11	2	8	1¼	34	2	F	51	2¼	¼	2	51	2¼	¼	2	180	37½
Union F–2½	3	¼	1¼	1¼	V	20	1¾	19½	1½	37¾	2	F	55	3	5/16	1	50	2	5/16	1	133½	32
Union FW–2½	3	¼	1¼	1¼	V	20	1¾	19½	1½	37¾	2	F	26	4½	¼	1	52	3	¼	1	133½	32
Union H–4	3	¼	1¼	1¼	V	20	1¾	19½	1½	37¾	2	F	56¾	3½	5/16	1	32	4½	5/16	1	157½	34
Union HW–4	3	¼	1¼	1¼	V	20	1¾	19½	1½	37¾	2	F	26	4½	¼	1	24	4	¼	2	157½	34
Union JW–6	3	¼	1½	2	V	20	1¾	19½	1½	41½	2	F	34	4	¼	1	28	5	¼	2	190	36
United 1½	4	¼	1	7/16	H	15	2½	16	1½	37½	2	F	48	2	5/16	1	48	1½	5/16	1	120	33
United 2½	4	¼	1¼	1 11/16	H	7	2½	12	1½	37½	2	F	49	3	5/16	1	49	2½	5/16	1	Opt	33
United 3½	4	¼	1¼	1 11/16	H	7	2½	7	1½	37½	2	F	62	3	5/16	1	58	2½	5/16	1	Opt	34
United 5	4	¼	1½	1 11/16	H	14½	2½	12	1½	37½	2	F	82½	2¼	5/16	1	88½	2½	5/16	1	Opt	38
U.S.N.–1½	3	M	1	1/8	H	11½	2	9	1¼	37	1¼	F	50½	2½	5/16	2	46½	1½	5/16	2	120	34
U.S.N.W.–1½	3	3/16	1	1/8	H	11½	2	9	1¼	37	1¼	F	19½	2	5/16	4	19½	2	5/16	4	120	34
U.S.R.–2½–3	3	5/16	1¼	1/8	H	10	1¼	10	1¼	35	1¼	F	21	2¼	¼	4	21	2¼	¼	4	144	34
U.S.S.–3½–4	3	¼	1¼	¼	V	9	1½	8	1½	37	1¼	F	50	2½	¼	2	50	2½	¼	2	156	36
U.S.T.–5–6	4	¼	1½	¼	V	15	2	13	1½	38¾	2	F	62	3	¼	4	33	4	¼	1	168	36
U.S.U.–1¼	4	5/16	1	1/8	V	11½	1¾	11½	1¼	33	1¼	F	50½	2½	5/16	2	46½	1½	5/16	2	108	32
Velie 46–1½	3	M	1	5/16	V	9½	2¼	12¼	1½	40	¾	V	54 5/16	2½	5/16	2	52 1/8	2¼	5/16	2	120	31
Vim 29½	3	3/16	7/8	....	....	....	....	....	....	30¾	1	F	14 7/8	1½	5/16	4	14 7/8	1½	5/16	4	64	30
Vim 30½	3	5/16	7/8	....	....	....	....	....	....	30¾	1	F	14 7/8	1½	5/16	4	14 7/8	1½	5/16	4	83½	30
Vim 31–1	4	5/16	1	....	....	....	....	....	....	40	1	F	18	2	5/16	4	18	2	5/16	4	92	32
Vim 22–2	4	5/16	1	....	....	....	....	....	....	40	1	F	42 5/8	2	¼	2	42 5/8	2	¼	2	120 5/8	34
Vim 23–3	5	5/16	1¼	....	....	....	....	....	....	40	1	F	48 7/8	2¼	¼	2	48 7/8	2¼	¼	2	160 1/16	34
Walker M½	....	....	....	....	....	....	....	....	....	....	....	....	43	2¼	5/16	2	14	1¾	5/16	4	90	32
Walker P3½	....	....	....	....	....	....	....	....	....	....	....	....	53¼	3	5/16	2	19¼	2½	5/16	4	140	35
Walker N5	....	....	....	....	....	....	....	....	....	....	....	....	53¼	3	5/16	2	19¼	2½	5/16	4	162	35
Walker Model 22	....	....	....	....	....	....	....	....	....	....	....	....	45½	2½	5/16	2	16	2	5/16	4	99	32
Walker Model 42	....	....	....	....	....	....	....	....	....	....	....	....	53¼	3	5/16	2	19¼	2½	5/16	4	120	32
Walker Johnson A–2	3	¼	1	1	V	11½	2	7½	1¾	37	1	F	12	3¼	¼	4	12	3¼	¼	4	117	32
Walker Johnson B3	4	¼	1¼	1¼	V	10	2	8	1¼	33½	1¼	F	13	3½	¼	4	13	3½	¼	4	133	32 1/16
Walter S–5	3	¼	1½	2	V	10	1½	18	1½	39	1½	F	15	5	¼	4	57	2½	¼	2	150	36
Ward LaFrance 2B–2½–3½	3	¼	1¼	1½	V	7	1½	16	1½	41½	1½	F	13	3½	¼	4	13	3½	¼	4	137½	33
Ward LaFrance 4A–3½–5	3	¼	1¾	1¾	V	8½	1½	18	1½	41½	1½	F	15½	3¾	¼	4	15½	3¾	¼	4	170 1/16	37
Ward LaFrance 5A–5–7	3	¼	1½	1¾	V	9¼	1½	18	1½	41½	1½	F	18	4	¼	4	18	4	¼	4	170 1/16	37
Watson B1	4	¼	1	1⅜	V	16½	1¼	4	1¼	40	1½	F	42	1¾	¼	2	41	1¾	¼	2	90 1/8	30
Watson N–3½	3	5/16	1¼	1½	V	16½	1¼	3	1¼	34	1¼	F	62	2½	¼	2	47	2½	¼	2	147	37
Watson U–5	3	5/16	1½	1½	V	16½	1¼	3	1¼	38½	1¼	F	15½	3¼	¼	4	15½	3¾	¼	4	....	36
White Hickory H–1½	3	5/16	1¼	1	....	11	2	8	1¼	41	5/8	V	13½	3½	¼	4	13½	3½	¼	4	116¼	32
White Hickory H–1½	3	5/16	1¼	1	....	11	2	8	1¼	41	5/8	V	11¾	3¼	¼	4	11¾	3¼	¼	4	116¼	32
White Hickory E–1	3	5/16	1¼	1	....	11	2	8	1¼	41	5/8	V	11	3	¼	4	11	3	¼	4	92¼	32½
White Hickory K–2½	3	5/16	1½	1¼	....	9	1½	8	1¼	33¼	1¼	F	13½	3½	¼	4	13½	3½	¼	4	150	32
Wichita K–1	3	¼	1⅛	1⅜	V	18½	1¼	12	1¼	52¾	1½	F	19½	2	5/16	4	19½	2	5/16	4	127½	30
Wichita M–2	3	¼	1⅛	1⅜	V	18½	1¼	12	1¼	52¾	1½	F	49	2	5/16	2	49	2	5/16	2	126½	30
Wichita RX–2½	3	¼	1¼	1¾	V	11	1½	11	1½	40	1½	F	54	2¼	5/16	2	54	2¼	5/16	2	130	36
Wichita O–3½	3	¼	1½	1¾	V	11	1½	11	1½	40	1½	F	56½	2½	¼	2	56½	2½	¼	2	152½	36
Wichita S–5	3	¼	1½	1¾	V	11	1½	11	1½	40	1½	F	66	3	¼	2	66	3	¼	2	163½	36
Wilcox AA–1	3	¼	1	....	....	....	....	....	....	....	....	....	47 5/16	2½	5/16	2	33¼	2½	5/16	2	96	34
Wilcox B–1½	3	¼	1¼	....	....	....	....	....	....	....	....	....	47 5/16	2½	5/16	2	33¼	2½	5/16	2	132	33
Wilcox C–2½	3	¼	1¼	....	....	....	....	....	....	....	....	....	57½	2½	5/16	2	42½	2½	5/16	2	141	33
Wilcox E–3½	3	¼	1¼	....	....	....	....	....	....	....	....	....	57½	2½	¼	2	42½	2½	¼	2	156	33
Wilcox F–5	3	¼	1½	....	....	....	....	....	....	....	....	....	69 3/8	3½	¼	2	52	3½	¼	2	148½	36
Wilson 1½	4	5/16	....	1	....	....	....	....	....	....	....	....	39½	1¾	5/16	2	39½	1¾	5/16	2	120	33
Wilson 2½	4	5/16	....	1¼	....	....	....	....	....	....	....	....	13¼	3½	5/16	4	13¼	3½	5/16	4	126	33
Wilson 3½	4	5/16	....	1½	....	....	....	....	....	....	....	....	16	3¾	5/16	4	16	3¾	5/16	4	147	38
Wilson 5	4	5/16	....	1½	....	....	....	....	....	....	....	....	18	4	5/16	4	18	4	5/16	4	147	38¼
Winther 751–1	3	¼	1	....	H	15¾	2	17	2	36 1/16	1	F	42	2	5/16	2	24	2	5/16	2	102	30
Winther 39–1½	3	¼	1¼	....	V	10	1¾	4 1/8	1½	33¼	1¼	F	50	2¼	¼	2	22½	2¼	¼	1	120	30
Winther 430–1½	3	¼	1¼	....	V	11¼	1½	11½	1¾	30 9/16	1½	F	50	2¼	¼	2	22½	2¼	¼	1	120	30
Winther 450 2½	3	¼	1¼	....	V	11½	1½	6½	1½	37½	1¼	F	52	3	¼	2	22½	2¼	¼	2	120	30
Winther 50–2½	3	¼	1¼	....	V	17⅞	1¾	8	1½	42½	2	F	52	3	¼	2	50	2¼	¼	2	58	33
Winther 51–2½	3	¼	1¼	....	V	17⅞	1¾	8	1½	42½	2	F	52	3	¼	2	50	2¼	¼	2	144	33
Winther 70–3½	3	¼	1¼	....	V	17⅞	1¾	8	1½	42½	2	F	62	3	¼	2	60	2½	¼	2	156	33
Winther 109–5	3	¼	1½	....	V	21½	1¾	8	1½	42½	2	F	93	2¼	¼	2	93	2¼	¼	2	156	33
Winther 140–7	3	¼	1½	....	V	12	1¾	6	1¾	42¾	2	F	93	2¼	¼	2	93	2¼	¼	2	156	34
Wisconsin 2 (Loganville)	3	¼	1¼	1¼	H	17	2	17	2	34	¼	F	58	2½	¼	2	56½	2¼	¼	2	114	34
Wisconsin 2½ (Loganville)	3	5/16	1¼	1¼	V	12	1½	10	1¼	40	¾	V	58	2½	5/16	2	56½	2¼	5/16	2	120	34
Witt Will N–1½	3	5/16	1¼	1¼	V	8	1½	12	1¼	31	1¼	F	48	3¼	¼	4	48	3¼	¼	4	Opt	32
Witt Will P–2	3	5/16	1¼	1¼	V	8	1½	12	1¼	31	1¼	F	52	3½	¼	4	52	3½	¼	4	Opt	32
Wolverine J–1	4	5/16	1	1¼	V	9½	1½	11½	1½	42	1¼	F	42½	2½	5/16	2	38	1¾	5/16	2	110	34½
Wolverine J–1½	3	5/16	1	1¼	V	9½	1½	11½	1½	42	1¼	F	51	3	5/16	2	42	2	5/16	2	120	34½
Wolverine J–2	4	5/16	1	1¼	V	9½	1½	11½	1½	42	1¼	F	51	3	5/16	2	42	3	5/16	2	132	34½
Wolverine K–2½	4	5/16	1¼	1¼	V	9½	1½	11½	1½	42	1½	F	55	3	5/16	2	47½	2	5/16	2	153	34
Wolverine L 3½	4	¼	1¼	1¼	V	9½	1½	11½	1½	44	1½	F	61½	3	5/16	2	58	2¼	5/16	2	174	35⅛
Yellow Cab M22—¾	3	5/16	1	5/16	V	7½	2	9 3/8	2	38½	5/8	V	49	2½	¼	2	45	2½	¼	2	60	43
Yellow Cab M42–1¼	3	5/16	1	5/16	V	7½	2	9 3/8	2	38½	5/8	V	11	3	¼	4	11	3	¼	4	92	32

KEY OF ABBREVIATIONS

Note: Numerals on This Page Correspond With Numerals at Head of Specification Columns on Page Following. In All Specifications—O, Own; Op or Opt, Optional

Engine:
Beav—Beaver
Bud—Buda
Cont—Continental
Dodge—Dodge Bros.
GBS—Golden, Belknap & Swartz
Gr-B—Gray-Beal
Her—Hercules
Hig—Highway
Hin—Hinkley
HSp—Herschell-Spillman
1 LeR—Le Roi
Lib—Liberty
LMF—Light Mfg. & Fdy.
Lyco—Lycoming
Mid—Midwest
Ster—Sterling
Sup—Supreme
TC—Twin City
Vict—Victory
Wau—Waukesha
Wei—Weidely
Wis—Wisconsin

Valve Arrangement:
H—Overhead
2 L—ELL-Head
T—TEE-Head
S—Sleeve

How Cooled:
A—Air
B—Pump & Thermo
3 C—Centrifugal
G—Gear Pump
T—Thermo-Syphon

Radiator (Make):
BW—B & W
Brm—Brenem
Bus—Bush
Can—Candler
Chic—Chicago
Eag—Eagle
EM—English-Mersick
Eur—Eureka
Fed—Fedders
Flex—Flexo
GO—G. & O.
Har—Harrison
Hoo—Hooven
4 Idl—Ideal
Jam—Jamestown
Kue—Kuenz
Liv—Livingston
Lng—Long
McC—McCord
May—Mayo
Mod—Modine
Per—Prefex
R-T—Rome-Turney
S-W—Sparks-Withington
Spar-Spartan
Spec—Special
Spli—Splitex
Stan—Standard

Radiator (Type):
C—Cellular
H—Honeycomb
5 PT—Plain Tube
ZZT—Zig Zag Tube
Whee—Wheeler
Fin—Fin Tube

Lubrication:
6 FS—Force and Splash
F—Force Feed
S—Splash

Carburetor:
B&B—Ball & Ball
Bent—Bennett
Cart—Carter
Eag—Eagle
7 Ens—Ensign
Flch—Fletcher
Holl—Holley
John—Johnson
King—Kingston
Mar—Marvel
Mas—Master
Mill—Miller
Rayf—Rayfield
Scoe—Scoe
Strm—Stromberg
Shk—Shakespeare
Sheb—Schebler
Stew—Stewart
Till—Tillotson
Zen—Zenith

Fuel Feed:
G—Gravity
8 P—Pressure
V—Vacuum

Governor:
Con—Continental
Del—Delaney
Dup—Duplex
Hin—Hinkley
Mer—Merrill
McC—McCanna
9 Mon—Monarch
Mue—Mueller
Phar—Pharo
Pier—Pierce
Rug—Ruggles
Sim—Simplex
Wau—Waukesha

Clutch (Make):
B B—Borg & Beck
B-Li—Brown-Lipe
Covt—Covert
Det—Detlaff
Full—Fuller
DG—Detroit Gear & Mach.
Dod—Dodge Bros.
10 GB&S—Golden, Belknap & Swartz
Hart—Hartford
Hoos—Hoosier
HS—Hele-Shaw
M-E—Merchant & Evans
Munc—Muncie
M-P—Muncie Products
T-D—Twin Disc
W-C—Warner Corporation
W-Gr—Warner Gear

Clutch (Type):
D—Disc
C—Cone
DP—Dry Plate
11 WP—Wet Plate
WD—Wet Disc
DD—Dry Disc
Fr—Friction

Ignition System:
Amr—American Swiss
Apo—Apollo
AtK—Atwater Kent
AuL—Auto-Lite
Bos—Bosch
Ber—Berling
Con—Connecticut
Del—Delco
Eis—Eisemann
12 Kin—Kingston
KW—K. W. Ignition Co.
Lor—Louraine
NE—North East
POL—Prest-O-Lite
Rm—Remy
Sim—Simms
Spl—Splitdorf
Tea—Teagle
Wag—Wagner
Wes—Westinghouse

Engine Starter:
AC—Allis-Chalmers
AK—Atwater Kent
AL—Auto-Lite
Bj—Bijur
Bos—Bosch
13 DL—Delco
Dy—Dyneto
GD—Gray & Davis
LN—Leece-Neville
NE—North East
RE—Remy
Wg—Wagner
USL—U. S. L.
W—Westinghouse

Gearset:
B-Li—Brown-Lipe
Cott—Cotta
Covt—Covert
D-Sea—Driggs-Seabury
Det—Detroit
Dod—Dodge Bros.
Dun—Dundore
14 Durst—Durston
Full—Fuller
G-Le—Grant Lees
MM—Mechanics Mach. Co.
Munc—Muncie
M-P—Muncie Products
Rock—Rockford
W-C—Warner Corporation
W-Gr—Warner Gear

Location of Gearset:
A—Amidships
15 R—Rear
U—Unit with engine
J—Unit with jackshaft

Universal:
A-B—Easton Mch. Co.
Acm—Acme
Arv—Arvac
Bear—Bearings Co.
Bld—Blood-Brothers
Cli—Climax
Det—Detroit
Dit—Ditwiler
Flex—Flexite
Hart—Hartford
16 KB—Kinsler-Bennett
Mech—Mechanics
M-E—Merchant & Evans
Nor—Norwalk
Pet—Peters
Sned—Snead
Spic—Spicer
Ster—Sterling
Ther—Thermoid
UM—Universal Machine
UP—Universal Products
Var—Varied

Springs:
All—Alloy Steel
Am—Am. Auto Parts
Bea—Beans
Cham—Champion
Coop—Cooper
Del—Delany
Det—Detroit
GC—Garden City
Har—Harvey
Hig—Higgins
IC—Iron City
Jax—Jaxon
Kal—Kalamazoo
17 Lah—Laher
Lig—Liggett
Mar—Maremont
Math—Mather
Mer—Merrill
Nat—National
Pen—Penn
Per—Perfection
Row—Rowland
Shel—Sheldon
SP—Spring Perch
Stan—Stan-Par
Ster—Sterling
Tem—Temme
Tut—Tuthill
US—United States
Wis—Wisconsin

Final Drive:
B—Bevel Gear
C—Chain
18 I—Internal Gear
N—Concentric Spur
P—Spur
R—Double Reduction
S—Spiral Bevel
W—Worm

Rear Axle (Make):
Amr—American
Badg—Badger
Fli—Flint
Col—Columbia
Cl—Clark
Dun—Dunkirk
Eat—Eaton, Stan-Par
Fli—Flint
Hind—Hindley
IrM—Iron Mt.
Keno—Kenosha
19 LM—L M Axle
Stn—Stanweld
Rock—Rockford
Russ—Russel
Sals—Salisbury
Sav—Savage
Shel—Sheldon
Thom—Thomson
Tim—Timken
Torb—Torbensen
W-M—Weston-Mott
US—United States
Vul—Vulcan
Walk—Walker
Wis—Wisconsin

Rear Axle (Type):
Flot—Floating
20 ½-Fl—Semi-Floating
¾-Fl—¾-Floating
D—Dead

Steering Gear:
CAS—C. A. S. Products Co.
Dit—Ditwiler
Dod—Dodge Bros.
Gem—Gemmer
Jac—Jacox
21 KH—Keystone Hendley
Lav—Lavine
M-P—Muncie Products
Ros—Ross
Sag—Saginaw Products Co.
W-C—Warner Corporation
Woh—Wohlrab

Wheels:
Arc—Archibald
AuW—Auto Wheel
Bim—Bimel
Cla—Clark
C&M—Crane & McMahon
Day—Dayton
Det—Detroit
E&O—Eberly & Oris
Hay—Haynes
Hoo—Hoopes Brothers
Jon—Jones
Kel—Kelsey
MM—Michigan Malleable Iron Co.
22 Mot—Motor Wheel
Mut—Mutual
Nor—Northern
Pru—Prudden
Roy—Royer
Rus—Russell
Sal—Salisbury
Sch—Schwartz
Smi—Smith
Sta—Stanwell
StM—St. Mary
Stn—Standard
Wal—Walker
Wan—Wayne
W-L—Waterhouse & Lester
Wes—Western Wheel Co.

Rim Equipment:
Bak—Baker
Det—Detroit
Fir—Firestone
23 Gdy—Goodyear
Hay—Hayes
Jax—Jaxon
Kel—Kelsey
Ken—Kennedy

Commercial Car Specifications—Corrected Monthly

The Specifications, Chassis Prices, Etc., Are Corrected Each Month From Data Supplied Direct by the Makers. Gasoline Tractor-Trucks Will be Found at the End of Gasoline Commercial Cars

See Also Replacement Table in "Service and Repair Departments." Truck Frame Dimensions Are Included in Replacement Table

(*Where prices are not given it is because we have been unable to get them from authoritative sources*)

* An asterisk in front of the model name indicates that corrections have been made somewhere in the specifications since the previous month

Trade Name and Model	Chassis Price	ENGINE DETAILS: Make and Model Number 4 Cylinder unless otherwise noted	Bore and Stroke	N. A. C. C. Horsepower	Valve Arrange't	How Cooled	Radiator (Make)	Radiator (Type)	Lubrication	Carburetor	Fuel Feed	Governor (Make)	Clutch (Make)	Clutch (Type)	Ignition System	Engine Starter	GEARSET: Make	Location	Speeds	Universal (Make)	Springs (Make)	REAR AXLE: Final Drive	Make	Type	Total Gear Reduction in High	Total Gear Reduction in Low	Steering Gear (Make)	TIRES, WHEELS, RIMS: *Pneumatic †Dual Front	*Pneumatic †Dual Rear	Wheels (Make)	Rim Equipment	Chassis Weight (Stripped)	Wheelbase
1000 Pounds		1			2	3	4	5	6	7	8	9	10	11	12	13	14	15		16	17	18	19	20			21			22	23		
Dodge Brothers	730	Own	3½x4½	24	L	C	McC	PT	FS	Stew	V	...	Own	DD	NE	NE	Own	U	3	Own	Own	S	Own	Flot	4.16	19.4	Own	32x4*	32x4*	Kel	Kel	1987	114
Dort	685	Lyc K	3½x5	19.6	L	T	Fed	C	S	Cart	V	.....	Own	C	Con	Bos	Own	U	3	MM	Lig	S	Fli	¾ Fl	4.45	15.13	Sag	31x4*	31x4*	Imp	Cle	2015	105
Vim 29	1050	Own	3½x4½	15.6	L	T	McC	Fin	FS	Zen	G	.....	B.B.	DD	Wes	W	Own	U	3	Spic	Shel	W	Own	.....	5.5	.....	CAS	31x4*	31x4*	Hoo	Fir	2175	108
Vim 30	1175	Own	3½x4½	15.6	L	T	McC	Fin	FS	Zen	G	....	B.B.	DD	Wes	W	Own	U	3	Spic	Shel	W	Own	.....	5.5	.....	CAS	32x4½*	32x4½*	Hoo	Fir	2290	127
1500 Pounds																																	
Acason Fast	.....	Own	3¾x5	22.5	L	C	....	C	F	Sheb	V	.....	Full	D	Eis	W	Full	U	3	Bld	Det	W	Timk	½ Fl	6.25	25	Ros	34x5*	34x5*	Bim	....	3080	142
Brockway E	.....	Buda WU	3¾x5½	22.5	L	T	Lng	Fin	FS	Strm	V	.....	W-Gr	DD	Rm	RE	W-Gr	U	3	Spic	Row	S	Col	Flot	5.86	25.	Gem	35x5*	35x5*	.....	Fir	3450	135
Chevrolet G	745	Own	3 11/16x4	21.7	H	B	Har	.....	FS	Zen	G	.....	.....	C	Rm	AL	M-P	...	3	Own	.....	S	.....	½ Fl	.....	.....	M-P	31x4*	34x4½*	.....	Jax	2167	120
*Clydesdale 10	1485	Cont N	3¾x5	22.5	L	T	.....	PT	FS	Zen	V	.....	B.B.	DP	Bos	Bos	B-Li	U	3	Spic	Stan	B	Timk	½ Fl	5	16.4	Jac	34x5	34x5	.....	Fir	3100	138
Garford 15	1590	Buda MU	3½x5½	21	L	T	Lng	PT	F	Strm	G	.....	...	DD	AtK	AK	Own	U	3	Spic	Per	W	Timk	½ Fl	6.25	.....	Gem	34x5*	34x5	.....	.....	3500	132
H. R. L.-L.	2200	H-Sp 7000	3½x5	19.6	L	T	Fed	Fin	F	Zen	V	.....	Own	DP	Bos	GD	Covt	U	3	Spic	Shel	W	Wis	½ Fl	6.2	22.	Ross	34x4½*	35x5*	Sch	Gdy	3300	134
Internat'l Speed Truck S.	1500	Lyco-Int'l	3½x5	19.6	L	T	Lng	Fin	FS	Ens	G	.....	Mun	DP	Con	AL	Mun	U	3	Sned	Stan	I	Torb	D	6.3	.....	CAS	34x5*	34x5*	Opt	.....	2600	124
Moreland R-R	1595	Her O	4 x5	25.6	L	T	Own	C	F	Zen	G	.....	B-Li	DD	AuL	AuL	B-Li	U	3	Ther	US	B	Timk	½ Fl	5.5	28	Ros	34x5	34x5	.....	.....	3350	132
Napoleon 7	1350	H-Sp 7000	3½x5	19 6	H	T	Own	H	F	Sheb	G	.....	B.B.	D	Eis	GD	MM	U	3	UP	Math	I	Torb	D	5.1	.....	Lav	33x4*	33x4*	Roy	Fir	2800	121
Ogden A2	.....	Cont N	3½x5	19.6	L	T	Chic	Fin	FS	Strm	V	.....	B-Li	DD	Spl	.....	B-Li	U	3	M-E	Tut	W	Timk	½ Fl	6.2	.....	Ros	34x5	34x5	Stn	....	3100	125
Rainier R11	1990	Cont-N	3½x5	19.6	L	T	Har	H	FS	Zen	V	Mon	B-Li	DP	Eis	.....	B-Li	U	3	Hart	Per	W	Timk	½ Fl	7.2	23.9	Lav	35x5*	35x5*	.....	Fir	2350	125
Republic Rapid Transit	1250	Lyco KB	3½x5	19.6	L	T	Own	C	FS	Strm	V	....	Own	DD	AuL	AL	Own	U	3	Spic	Math	I	Torb	D	5.38	15.06	Jac	32x4½*	32x4½*	Mot	Fir	2650	124
Samson 15	595	Own	3 11/16x4	21.8	H	C	Own	PT	FS	Zen	G	Mon	Own	D	Rm	AL	Own	A	3	Own	Own	S	Own	½ Fl	6.33	21.02	Own	32x4*	32x4*	Own	Hay	2300	118
*Service 12	.....	Mid 409	3¼x4½	16.9	H	C	Lng	Fin	F	Strm	G	...	Hoos	DP	Rm	Rm	Det	U	3	M-E	Shel	B	Timk	½ Fl	6 88	22.1	Ros	32x4½*	32x4½*	Bim	Fir	2720	128
*Stewart 14	1245	.....	3⅝x5½	21	L	T	Bus	PT	F	Zen	G	.....	.....	DP	Rm	.....	.....	U	3	Spic	Det	I	Cl	D	5.5	16.99	Ros	32x4½*	32x4½	Way	Fir	3090	123
Stoughton C	1240	.....	3½x5	19.6	L	T	....	Fin	FS	Strm	G	.....	.....	DP	Wes	W	Own	...	...	Ther	.....	B	.....	.....	5.87	23.5	....	34x4½*	34x4½*	.....	.....	2480	131
Triangle AA	1285	H-Sp	3¼x5	16.9	L	T	Per	ZZT	FS	Strm	G	.....	Full	DD	NE	NE	Full	U	3	UP	Det	I	Cl	D	6.75	20.	Gem	34x4½	34x4½	Hay	Fir	2600	115
Watson B	1865	Wau BUX	3¾x5¼	22.5	L	T	GO	C	FS	John	G	Wau	B-Li	DP	Con	D	B-Li	U	3	M-E	Shel	W	Emp	½ Fl	6.2	20.7	Lav	35x5	35x5	Hoo	Fir	2900	128
White 15	2400	Own	3¾x5½	22.5	L	C	....	C	FS	Own	G	.....	Own	D	...	.....	Own	A	4	Own	.....	B	Own	½ Fl	.....	.....	Own	34x5*	34x5*	.....	Fir	3200	133
Yellow Cab M-22-¾	1590	Cont V-4	3¾x5	22.5	L	T	Lng	Fin	FS	Zen	G	.....	B-Li	DD	Bos	.....	B-Li	U	3	Spic	Math	B	Timk	.....	4.9	16.31	Gem	33x4½	33x4½*	Stn	Fir	2400	117
1 Ton																																	
Acason R	.....	Wau B.U.X.	3¾x5¼	22.5	L	P	Can	C	S	Sheb	V	Wau	Full	.....	Eis	.....	Full	U	4	Bld	Det	W	Timk	½ Fl	7.20	34.5	Ros	36x3½	36x5	Bim	Opt	3650	142
Acme 20	.....	Cont N	3¾x5	22.5	L	T	GO	C	FS	Rayf	V	Dup	B.B.	DP	Eis	GD	Cott	U	3	Bld	Det	W	Timk	½ Fl	6.2	24.8	Ros	35x5*	35x5*	Bim	.....	3050	129
Apex G	.....	Cont N	3¾x5	22.5	L	T	GO	C	FS	Rayf	V	Dup	B.B.	DP	Eis	GD	Cott	U	3	Bld	Det	W	Timk	½ Fl	7.2	28.8	Ros	34x3½	34x5	Bim	.....	3406	129
Apex	1750	Buda NU	3⅝x5½	21	L	T	GO	C	S	Strm	V	.....	Full	D	AuL	AL	Eull	U	3	Bld	Det	W	Timk	.....	6.25	.....	Lav	35x5*	35x5*	Roy	Fir	2650	130
Armleder 20	2350	Buda CTU	3¾x5¼	22.5	L	T	Lng	Fin	F	Zen	V	Phar	Full	DD	Bos	W	Full	U	3	Spic	Math	W	Timk	Flot	7.25	29	Ros	34x3½	34x5	StM	....	4200	148
Atlas Merchant's Dispatch	1185	Lyco	3½x5	19.6	L	T	Own	H	S	Strm	V	.....	B.B.	DD	AtK	Bj	Own	...	3	Ster	IC	W	Own	½ Fl	6	16.8	CAS	32x4½*	32x4½*	.....	.....	2650	130
Avery	.....	Own 6	3 x4	21.6	L	T	Own	C	S	Strm	V	Own	Own	DP	KW	W	Own	U	3	Pet	Math	I	Torb	D	8	26.66	Ros	34x5*	34x5*	StM	Gdy	2800	129
Bell M	1495	Buda	3⅝x5½	21	L	T	Chic	PT	F	Zen	V	.....	B.B.	DP	Eis	.....	Mun	U	3	Ther	Det	W	Timk	.....	7.2	.....	Dit	35x5	35x5	Bim	Fir	2500	126
Bessemer G	.....	Cont N	3½x5	19.6	L	T	Std	C	FS	Strm	G	.....	Full	DD	Bos	Bj	Full	U	3	Arv	Per	I	Torb	D	.....	.....	Ros	35x5	35x5	Sch	Fir	3000	124
Birch I	1285	Vict	3½x5	19.6	l	T	Chic	PT	FS	Strm	G	.....	Full	DD	Con	.....	Full	U	3	UM	.....	I	Cl	D	.....	.....	Lav	32x3½*	32x4*	.....	.....	3200	132
*Casco Model A	1785	Buda MU	3⅝x5½	21.2	L	T	GO	C	F	Zen	V	.....	Full	DD	Bos	Bos	Full	U	3	Spi	Stan	S	Col	½ Fl	5.85	23.46	Woh	34x5	34x5	Arc	Fir	3100	130
Chevrolet T	1125	Own	3 11/16x4	21.7	H	C	Har	.....	FS	Zen	G	Mon	.....	C	Rm	AL	M-P	...	3	Arv	.....	W	.....	½ Fl	.....	.....	M-P	33x4*	35x5*	.....	Jax	2840	125
Collier 18	.....	Cont N	3½x5	19.6	T	T	Lng	PT	S	Zen	V	Mon	Full	DP	Eis	.....	Full	U	3	UP	Math	W	Timk	½ Fl	7.75	31	Ros	34x4	34x5	Bim	Fir	3210	140
*Corbitt E-22	1480	Cont N¾	3¾x5 •	22.5	L	P	MeC	Fin	FS	Strm	V	.....	B-Li	DD	Eis	.....	B-Li	U	3	Hart	Shel	W	Shel	½ Fl	6	20	Ros	34x3½	34x4	Bim	Fir	3730	130
Day Elder AS	1600	Cont N	3¾x5	22.5	L	T	Bus	Fin	FS	Zen	G	.....	Covt	DD	Eis	.....	Covt	U	3	Hart	IC	W	Shel	½ Fl	6	21.96	Gem	35x5*	35x5*	Jon	Fir	3000	128
Dearborn E (Speed)	1600	Buda MU	3⅝x5½	21	L	T	Chic	PT	F	Strm	V	.....	Full	DP	Bos	Bos	Full	U	3	Hart	....	W	Wis	½ Fl	6.2	18.6	Dit	35x5*	35x5*	.....	Fir	3280	133
Defiance G	1695	Hig	3¾x5	22.5	L	T	Per	C	FS	Strm	V	.....	B.B.	D	Eis	AL	G-Le	U	3	Arv	Det	B	Eat	.....	5.5	.....	Own	35x5*	35x5*	StM	Fir	2700	128
Denby 31	1485	Cont	3½x5	19.6	L	P	Lng	PT	FS	Strm	G	.....	Full	DD	Eis	RE	Full	U	3	UP	Det	B	Col	½ Fl	5.85	23.46	Ros	35x5*	35x5*	Mot	Fir	2840	130
Diehl A	.....	Cont N	3½x5	19.6	L	T	.....	H	FS	Zen	G	.....	B.B.	.....	Sim	.....	Durs	...	3	KB	Mar	I	Torb	D	5.3	.....	Ros	34x4½*	35x5*	Sch	Fir	2400	115
*Earl 40	1095	Own 40	3 7/16x5¼	18.9	L	T	SW	ZZT	FS	Scoe	V	.....	B.B.	DP	Con	AL	Own	U	3	Own	Math	S	Own	½ Fl	4.875	13.91	CAS	32x4*	32x4*	Hay	Hay	1695	112
Eugol	1795	Buda MU	3⅝x5½	21	L	C	Chic	PT	F	Strm	V	.....	UC	DD	....	W	UC	U	3	Pet	Math	W	Timk	½ Fl	6.25	30.3	Ros	34x5*	34x5*	Bim	Fir	3500	135
Federal SD	1800	Cont J-4	3¾x5	22.5	L	C	Own	Fin	F	Zen	V	Phar	B.B.	DP	Eis	.....	Own	A	3	Spic	Math	W	Timk	½ Fl	7.2	20.65	Gem	35x5*	36x6*	Det	Det	3600	132
*Ford T	285	Own	3¾x4	22.5	L	C	Own	Fin	S	.....	G	....	Own	.....	Own	....	Own	U	2	Own	Own	W	Own	½ Fl	Opt	19.9	Own	30x3½*	32x4½	.....	.....	1430	124
Forschler A	..	Cont N	3½x5	19.6	L	C	EM	.....	FS	Zen	V	Dup	Full	.....	Bos	Op	Full	...	3	Hart	Own	W	Shel	.....	.....	.....	Ros	34x3	34x4	.....	.....	3450	120
Fulton A	1495	H-Sp-7000	3¼x5	19.6	L	T	Liv	H	FS	Cart	G	....	DP	B.B.	Ber	W	Durs	U	3	Spic	Row	B	Col	6.8	.....	Lav	35x5	35x5	Hoo	Fir	2800	130
Gary	1675	Buda	3¾x5	22.5	L	T	Chic	Fin	S	Mas	G	Pier	Full	DD	Eis	.....	Full	U	3	Hart	Tut	W	Timk	½ Fl	.....	.....	Ros	36x3½	36x5	Pru	.....	3200	130
G. M. C. K-16	1295	Own	3 7/16x5½	19.6	L	T	Own	Fin	F	Mar	G	Own	Own	DD	Eis	Ow	Own	U	3	G M	Det	B	Own	¾ Fl	6	21.9	Own	34x5*	34x5*	Kel	...	3300	132
Graham Brothers	1265	Dodge	3 11/16x4½	24	L	C	McC	PT	FS	Stew	V	.....	Dod	DD	NE	NE	Dod	U	3	Var	Det	S	Own	½ Fl	6.28	29.29	Dod	33x4½*	34x5*	.....	.....	2515	140
Gramm—Pioneer 10 Speed T	1365	Lyco	3½x5	19.6	L	C	Own	Fin	S	Strm	V	.....	B.B.	DP	Con	AL	...	...	3	Own	Per	B	Sale	¾ Fl	5.75	21	Ros	33x5*	33x5*	.....	Fir	2870	129
Higrade A18	2100	Cont N	3½x5	19.6	L	T	Per	PT	FS	Zen	V	Dup	Full	DD	Slm	AL	Full	U	3	Bld	Per	W	Shel	...	7.7	22.75	Lav	35x5	35x5	Det	Fir	2700	118
Independent B (Iowa)	1665	Cont N	3½x5	19.6	L	C	GC	PT	FS	Strm	V	.....	Full	DD	Bos	....	Full	U	3	Bld	GC	I	Russ	D	.....	.....	Lav	34x3	34x4	StM	Fir	3480	135

| | | |

Trade Name and Model	Chassis Price	ENGINE DETAILS: Make and Model Number (4 Cylinder unless otherwise noted)	Bore and Stroke	N. A. C. C. Horsepower	Valve Arrange't	How Cooled	Radiator (Make)	Radiator (Type)	Lubrication	Carburetor	Fuel Feed	Governor (Make)	Clutch (Make)	Clutch (Type)	Ignition System	Engine Starter	GEARSET: Make	Location	Speeds	Universal (Make)	Springs (Make)	REAR AXLE: Final Drive	Make	Type	Total Gear Reduction in High	Total Gear Reduction in Low	Steering Gear (Make)	TIRES, WHEELS, RIMS: *Pneumatic †Dual Front	Rear	Wheels (Make)	Rim Equipment	Chassis Weight (Stripped)	Wheelbase
1½ Ton—Con'd		1			2	3	4	5	6	7	8	9	10	11	12	13	14	15		16	17	18	19	20			21			22	23		
*D-Olt A	2450	H-Sp 7000	3½x5	19.6	L	T	GO	PT	S	Zen	V	Dup	B.B.	...	Bos	...	Cott	4	Spic	SP	W	Timk	½ Fl	8.25	...	Ros	34x4	34x5	...	Own	Fir	4500	168
Douglas G–1½	1750	Buda WU	3¾x5½	22.5	H	S	Own	PT	F	Sheb	V	.....	Full	DP	Eis	.....	Full	3	Arv	Own	W	Torb	D	8	23.1	Ros	24x3½	34x5	...	Own	Fir	3725	126
Douglas GW	1750	Wei	3¾x5½	22.5	L	C	Own	PT	FS	Sheb	V	.....	B.B.	D	Eis	.....	G-Le	3	Arv	Own	I	Torb	D	8	23.1	Ros	24x3½	34x5	...	Own	Fir	3725	126
Erie E-1½	.....	Buda CTU	3¾x5½	22.5	L	C	Own	PT	FS	Zen	V	Phar	Full	DP	Bos	.....	Full	3	Arv	Own	I	Shel	½ Fl	7.8	31.2	Ros	36x6*	36x6*	...	Bim	Fir	4400	144
Federal TE	2175	Cont C4	4 1/16x5¼	27.2	L	C	Own	PT	F	Zen	V	Dup	B.B.	D	Eis	.....	Full	3	Spic	Own	I	Timk	Flot	8.5	37.4	Gem	36x3½	36x5	...	Sch	Fir	4250	144
Forschler C	.....	Cont N	3½x5	19.6	L	C	Own	PT	F	Zen	V	Pier	B.B.	DD	Spl	.....	Own	3	Hart	Own	I	Shel	.....	.....	.....	Ros	36x3½	36x5	...	Smi	.....	3670	120
Front Drive C	2800	Buda CTU	3¾x5¼	22.5	L	C	Own	PT	S	Zen	V	Mon	B.B.	.....	Bos	Bos	Cott	3	Bld	Tut	I	Own	½ Fl	8	32	Lav	34x5	34x5	...	Stn	.....	3200	Op
*Gersix M	3100	Buda ITU	4 x5½	25.6	L	C	EM	PT	S	Strm	V	Hin	B.B.	DD	Spl	Op	Full	3	Bld	Math	W	Own	½ Fl	7.7	31	Ros	36x3½	36x6	...	Jon	.....	4620	142
Giant 15A	2250	Cont N	3⅛x4½	24	...	C	Idl	PT	F	Sheb	V	.....	B-Li	DD	Bos	Op	Own	3	Spic	Det	W	Timk	½ Fl	7.8	24.97	Jac	34x3½	34x5	...	Way	.....	3450	138
Graham Brothers	1325	Dodge	3¾x5	22.5	L	C	Idl	PT	S	Stew	V	.....	Dod	DD	Spl	Op	Own	3	Spic	Per	W	Own	½ Fl	7.8	29.29	Dod	33x4½*	36x6	...	.....	.....	2540	140
Gramm-Pioneer 15	1900	Cont N	3⅛x4½	24	...	C	MoC	PT	F	Sheb	V	.....	Full	DD	Bos	Op	Own	3	Acm	GC	W	Cott	D	7.6	30.4	Ros	36x3½	36x5	...	Bim	Fir	3800	138
Gramm-Pioneer 65	2500	Cont N	3¾x5	22.5	L	C	Own	PT	S	Strm	V	.....	Full	DD	Eis	AL	Full	3	Bld	Per	W	Cott	½ Fl	7.8	28	Ros	36x3½	36x5	...	Bim	Fir	4200	138
*G. W. W. Farm Spec	1685	Wei	3¾x5	22.5	L	C	Own	Fin	S	Strm	V	.....	Full	DD	Eis	GD	B-Li	3	Spic	Shel	W	Shel	.....	7.7	31	Lav	34x5	35x5	...	Roy	Fir	3200	142
Higrade B20	2500	Cont K4	3¾x5½	22.5	H	C	Chio	Fin	S	Strm	V	.....	Full	DD	Eis	.....	B-Li	3	Spic	Per	W	Shel	.....	7.75	30	Ros	36x4	36x7	...	Det	Fir	3100	130
H R.L.-R	3250	Hink HAA	4 1/16x5¼	27.2	L	C	Per	PT	F	Zen	V	.....	Full	DP	Eis	.....	Cott	3	Det	Det	W	Own	Cl	.....	.....	Ros	34x4	34x5	...	Sch	Gdy	4560	144
Hurlburt	.....	Buda IU	4 x5¼	25.6	L	C	Fed	Fin	F	Zen	V	Dup	B-Li	DP	Bos	.....	Full	3	Bld	GC	W	Cl	D	7	36.4	Jac	35x5*	38x7*	...	Way	.....	4000	148
Huron-Erie	.....	Buda CTU	4 x5½	25.6	L	C	Own	...	F	Fin	V	Pier	B-Li	DP	Bos	.....	Full	3	Bld	Ster	W	Russ	D	8.2	.....	Lav	34x3½	34x5	...	AuW	Fir	.....	144
Independent G (Iowa)	2040	Cont N	3¾x5¼	22.5	L	C	GC	PT	FS	Zen	V	Dup	B.B.	DP	Bos	.....	Full	3	Spic	Math	W	Wis	.....	8.2	33.1	Ros	36x3½	36x5	...	StM	Fir	3875	142
Independent F (Ohio)	2385	Cont N	3¾x5	22.5	L	C	Lng	PT	F	Zen	V	Pier	Full	DP	Eis	.....	B-Li	3	Spic	Shel	W	Shel	½ Fl	7.8	31.2	Woh	34x3½	34x5	...	.....	.....	3400	140
Indiana 12	.....	Wau BUX	3¾x5	22.5	L	C	Mc	PT	F	Strm	V	Pier	Full	DP	Bos	.....	Own	3	Spic	Per	W	Shel	½ Fl	8	26.5	Own	36x3½	36x5	...	Bim	.....	4100	134
International 31	1850	Own	3¾x5¼	22.5	L	C	Mc	PT	F	Strm	V	Pier	Full	DP	Eis	.....	Full	3	Spic	Per	W	Shel	½ Fl	8.5	40.8	Ros	36x4	36x4	...	Own	.....	3190	128
Kalamazoo GI	2495	Cont N	3½x5¼	19.6	L	C	Own	PT	FS	Strm	V	Pier	B.B.	DP	Bos	.....	B-Li	3	Spic	Per	W	Shel	½ Fl	8.6	40.8	Ros	36x4	34x5	...	Bim	.....	4450	144
Kalamazoo LG	2645	Wis SU	3¾x5	22.5	L	C	GO	PT	F	Ens	V	Wau	B.B.	DP	Eis	.....	Own	3	Spic	Per	W	Own	D	8.6	31.58	Gem	36x3½	36x7	...	Smi	.....	5080	144
Kelly-Springfield K31	2700	Own	4 x5	25.6	L	C	GO	PT	F	Strm	V	Own	B.B.	DP	Bos	Own	Own	3	Spic	Mat	W	Own	½ Fl	8.6	31.58	Gem	36x3½	36x6	...	StM	.....	4420	Op
*Kelly-Springfield K34	2700	Own	3¾x5¼	22.5	L	C	Lng	Fin	F	Strm	V	Pier	Full	D	Bos	Dy	Own	3	Spic	Shel	W	Shel	½ Fl	7.8	28.5	Jac	36x3½	36x5	...	StM	.....	4670	Op
Kissel General Utility	1975	Own 40000	3½x5½	24.1	L	C	Lng	Fin	F	Zen	V	Pier	Full	D	Bos	Dy	Full	3	B.B.	Shel	W	Own	½ Fl	7.1	37.51	Ros	36x3½	36x5	...	Pru	.....	4100	152
Kleiber A	.....	Cont K4	4 1/16x5¼	27.2	L	C	Mc	PT	F	Zen	V	Pier	B.B.	D	Bos	W	Ful	3	B.B.	Shel	W	Per	½ Fl	7.25	.....	Lav	34x3½	34x5	...	Smi	.....	5200	143
Koehler D	1995	H-Sp	3½x5	19.6	L	C	Own	Fin	F	Strm	V	Pier	B.B.	D	Bos	W	Covt	3	B.B.	Per	W	Own	½ Fl	7.6	25.5	Ros	34x3½	34x5	...	Way	.....	3600	137
Larrabee U	2400	Cont N¾	3¾x5	22.5	L	C	Own	Fin	F	Strm	V	Sim	B-Li	DD	Bos	.....	Covt	3	Spic	Per	W	Own	½ Fl	8.6	26.6	Lav	34x3½	34x5	...	Hoo	.....	3600	138
Luedinghaus W	2490	Wau BUX	3¾x5	22.5	L	C	Bus	Fin	S	Zen	V	Sim	B-Li	DD	Spl	.....	W-Gr	3	Spic	Mat	W	Shel	½ Fl	8.75	46.81	Ros	36x4	36x6	...	StM	.....	4100	144
Maccar L	.....	Cont C4	3¾x5¼	22.5	L	C	Own	Pit	FS	Sheb	V	Wau	B.B.	DD	Spl	.....	B-Li	3	Spic	Math	W	Timk	½ Fl	6.9	28.01	Own	36x4	36x3½†	...	Day	Fir	4800	150
Mack AB1½	3000	Own AB	4 x5	25.6	L	C	Own	Fin	S	Strm	V	Mue	B-Li	D	Bos	.....	B-Li	3	Spic	Mer	W	Dun	½ Fl	7.6	40.36	Own	36x4	36x3½†	...	.....	.....	5000	Op
Mack AB1½	3450	Own AB	4 x5	25.6	L	C	Own	C	S	Sheb	V	Own	B-Li	DD	Spl	.....	Det	3	Spic	Tut	W	Shel	½ Fl	8.6	26.6	Lav	34x3½	34x5	...	Pru	.....	5100	Op
Master JW	2290	Buda OU	4 1/16x5½	27.2	L	C	Own	PT	S	Sheb	V	Own	Full	DD	Spl	.....	B-Li	3	Spic	Mer	W	Wis	½ Fl	8.6	26.6	Ros	34x3½	34x5	...	Pru	.....	3900	142
Master JWL	2365	Buda OU	4 1/16x5½	27.2	L	C	Chio	PT	S	Mas	V	Own	Full	DD	Spl	.....	Own	3	Spic	Mer	W	Timk	½ Fl	8.75	46.81	Ros	34x3½	34x5	...	Pru	.....	3900	160
Master JD	2590	Buda OU	4 1/16x5½	27.2	L	C	Chio	PT	S	Mas	V	Own	Full	DP	Eis	.....	Own	3	Spic	Det	W	Own	D	6.9	28.01	Own	36x4	36x6	...	Walk	.....	3900	142
Master JDL	2665	Buda OU	4 1/16x5½	27.2	L	C	Chio	PT	S	Mas	V	Own	Full	DP	Eis	.....	Full	3	Spic	Det	W	Own	Flot	7.6	30.40	Own	36x4	36x3½†	...	Walk	.....	3900	144
Maxwell	.....	Own	3 5/16x4½	21	...	C	Own	PT	S	Mas	V	Own	Full	DP	Eis	.....	Full	3	Spic	Det	W	Timk	½ Fl	7.6	Opt	Ros	34x3½	34x5	...	Pru	.....	5000	Op
Menominee H	2475	Wis EAU	4 x5	25.6	L	C	Own	PT	S	Eag	V	Own	Full	DP	Eis	.....	Full	3	Spic	Det	W	Timk	½ Fl	8.6	Opt	Ros	34x3½	34x5	...	Pru	.....	5100	Op
Moline 10	1695	Own NT	3½x5	19.6	H	L	Own	Fin	FS	Strm	V	Own	Full	DD	Eis	.....	Full	3	Spic	Det	W	Timk	½ Fl	8.6	Opt	Ros	34x3½	34x5	...	Pru	.....	3900	142
Moreland EX	2800	Cont K4	4 1/16x5¼	27.2	L	C	Mod	CC	F	Strm	V	Own	Det	DP	AtK	Opt	Full	3	Spic	Det	W	Timk	½ Fl	8.75	Opt	Ros	34x3½	34x5	...	Walk	.....	3900	160
*Napoleon 11	1860	Viet T	3½x5	19.6	H	L	Own	PT	F	Till	V	Mon	Full	DP	Eis	Opt	Own	3	Spic	Tut	W	Own	½ Fl	7.25	34.4	Own	35x5	35x5	...	Walk	.....	3900	142
Nelson-LeMoon G2	.....	Cont K4	4 1/16x5¼	27.2	L	C	Own	PT	F	Mas	V	Phar	Full	DP	Spl	.....	Cott	3	Arv	Math	I	Own	½ F	8.25	30.36	Ros	36x3½	36x5	...	Kel	Fir	2385	124
Noble B30	.....	Buda CTU	3¾x5¼	22.5	L	C	Chio	Fin	F	Scoe	V	.....	Full	DD	Spl	.....	Own	3	Ther	US	W	Torb	.....	8	38	Ros	34x5*	36x6*	...	Stn	Fir	4220	144
Norwalk	1925	Lyco K	3½x5	19.6	L	C	Chio	Fin	FS	Strm	V	Phar	B-Li	DD	Bos	Bos	Full	3	Bld	Math	W	Timk	½ Fl	8	33.88	Ros	36x3½	36x6*	...	Smi	.....	.....	130
Norwalk 35 E Special	2285	Buda CTU	3¾x5¼	22.5	L	C	Stan	C	FS	Zen	V	Pier	Full	DD	Eis	W	B-Li	3	Own	Tut	W	Keno	D	7	24	Lav	35x5*	36x6*	...	Roy	Fir	4975	126
Ogden D1½	2450	Cont N	3¾x5	22.5	L	C	Stan	C	FS	Zen	V	.....	B.B.	D	Del	Dy	G-Le	3	M-E	Tut	W	Timk	½ Fl	7	.....	Lav	36x3½	36x6	...	Pru	Gdy	3450	133
O K 1½T	2350	Buda ITU	4 x5½	25.6	L	C	Chio	Fin	FS	Strm	V	Pier	B.B.	DD	Spl	Dy	G-Le	3	UM	SPar	W	Shel	½ Fl	8.7	31.1	Lav	36x3½	36x5	...	Bim	Fir	3400	Op
Old Reliable A	1950	WisEU	4 x5	25.6	L	C	R-T	PT	FS	Zen	V	Pier	Full	DD	Eis	.....	B-Li	3	Spic	Stan	W	Shel	½ Fl	7.75	.....	CAS	34x3½	34x5	...	E&O	Fir	4680	156
Paige 52-19	2450	Buda ITU	4 x5¼	25.6	L	C	Chio	PT	F	Strm	V	Mon	Full	DD	Bos	Op	Full	3	M-E	Hart	W	Shel	½ Fl	8.75	.....	Det	34x4*	34x5	...	E&O	Fir	3450	150
Pittsburgher A	2350	HinHAA400	3 5/16x5	21.2	L	C	GO	PT	F	Strm	V	Hink	B-Li	DD	Bos	.....	Full	3	Spic	Cham	W	Timk	½ Fl	8.25	24.8	Ros	36x3½	36x5	...	Stn	.....	3400	136
Power F	3000	Own	4 x5¼	25.6	L	C	Own	Fin	F	Strm	V	.....	B-Li	DP	Bos	Op	Full	3	Spic	Shel	W	Timk	½ Fl	7.7	24.94	Ros	36x3½	36x5	...	Bim	.....	4310	146
Premocar	3150	Hink	3½x5	19.6	L	C	GO	PT	F	Zen	V	Hin	Full	DD	Eis	W	B-Li	3	Spic	Per	W	Timk	½ Fl	7.7	37.51	Ros	34x3½	36x6	...	StM	.....	4150	138
Rainier R16	2350	Lyc-K	3¾x5	22.5	L	C	EM	Fin	FS	Zen	V	.....	BB	...	Del	Dyn	Full	3	C	Row	W	Own	F	8.75	46.8	Ros	34x3½	34x5	...	Own	Fir	4000	140
Reliance 10A	2490	Cont J-4	3¾x5	22.5	L	C	Bus	PT	FS	Zen	V	Pier	B-Li	DP	Eis	.....	G-L	3	Arv	Shel	W	Vul	F	7.75	37.2	Ros	36x4	36x7	...	Smi	.....	5000	152
Republic 11X	2400	Buda ITU	4 x5½	25.6	L	C	Own	Fin	FS	Strm	V	Pier	Full	DD	Eis	.....	B-Li	3	Spic	Per	W	Timk	½ Fl	7	.....	Ros	36x6*	40x8*	...	StM	Fir	5300	150
Rowe CW1½	1795	Cont N3¾	3¾x5	22.5	L	C	Own	PT	FS	Strm	V	Pier	Full	DD	Bos	.....	Full	3	Hart	Per	W	Shel	.....	7.8	.....	Dit	36x6	36x6	...	.....	Fir	5300	150
Rumely A	3000	Wis CAU	3¾x5	22.5	L	C	Own	C	FS	Strm	V	Sim	B-Li	DD	Bos	.....	Full	3	Pet	Shel	W	Badg	D	6.6	26.4	Lav	34x3½	34x5	...	.....	Fir	4200	130
Selden Unit 30	1990	Buda CTU	3¾x5¼	22.5	L	C	Fed	H	F	Zen	V	Pier	Full	DD	Ber	.....	B-Li	3	Hart	Math	W	Torb	D	8	18.84	Ros	36x3½	36x5	...	Bim	Gdy	4200	130
Service 220	2250	Cont N	3¾x5	22.5	L	C	Mod	ZZT	F	Strm	V	Pier	B-Li	D	Eis	.....	B-Li	3	Spic	Shel	W	Shel	½ Fl	8	26	Jac	34x4	34x6	...	Nor	Fir	3600	147
Signal H	2450	Buda RU	3½x5½	19.6	L	C	Lng	Fin	FS	Strm	V	Pier	Full	DD	Eis	.....	B-Li	3	Bld	Mat	W	Timk	½ Fl	6.5	26	Ros	36x3½	36x6*	...	Hoo	.....	4500	150
Southern 15	2590	Cont C4	4 1/16x5¼	27.2	L	C	McC	PT	FS	Strm	V	Pier	B-Li	D	Eis	.....	Full	3	Spic	Per	W	Timk	½ Fl	7.8	31.2	Gem	36x3½	36x6*	...	Mot	Gdy	3656	144
Standard 1K	1600	Cont N	3¾x5	22.5	L	C	R-T	PT	FS	Strm	V	Pier	B-Li	DD	Eis	.....	B-Li	3	Arv	Shel	W	Timk	½ Fl	7	23.31	Lav	34x3½	36x5	...	Arc	.....	3800	133
Sterling 1½	2885	Cont N	3¾x5	22.5	L	C	Lng	Fin	FS	Zen	V	Pier	B-Li	DD	Eis	.....	Full	3	Spic	Shel	W	Timk	½ Fl	7.75	23.25	Ros	34x3½	34x5	...	Bim	.....	4100	144
Stewart 9	1790	Ster FU	4x5¾	25.6	L	C	Own	PT	F	Strm	V	Mon	B-Li	DD	Eis	.....	Full	3	Spic	Per	W	Shel	.....	7.75	31	Ros	34x4	36x6	...	St.M	.....	3560	137
Stoughton B	2350	Cont N¾	3¾x5	22.5	L	C	Bus	PT	FS	Zen	V	Wau	B-Li	DD	Eis	.....	Full	3	Spic	Mat	W	Timk	½ Fl	7.2	23.97	Ros	36x6	38x7	...	.....	.....	3450	137
*Tiffin GW	2350	Wau BUX	3¾x5¼	22.5	L	C	Own	PT	FS	Zen	V	.....	B-Li	DD	Eis	.....	B-Li	3	Spic	Det	W	Timk	½ Fl	7	37.45	Ros	34x3½	34x5†	...	.....	Opt	4100	146
Tower J1½	2100	Cont C4	4 1/16x5¼	27.2	L	C	Own	Fin	FS	Strm	V	Wau	Full	DD	Eis	.....	Full	3	Hart	Det	W	Cl	½ Fl	7.8	31.2	Ros	36x3½	36x5	...	Pru	.....	.....	144
*Traffic-Speedboy	2900	Cont C4	4 1/16x5¼	27.2	L	C	Own	Fin	FS	Sheb	V	Pier	Full	DD	Bos	W	Full	3	Ther	Shel	W	Shel	D	7.6	22.8	Gem	34x3½†	34x5†	...	Roy	Fir	3466	134
*Transport 25	1595	Cont N4	3¾x5	22.5	L	C	Own	C	FS	Zen	V	Pier	Full	DP	Eis	.....	Full	3	Bld	Ther	W	Shel	½ Fl	7.8	31.2	Lav	36x3½	36x5	...	Way	Fir	4750	142
Traylor B	1495	Buda WU	3¾x5½	22.5	L	C	Cart	...	F	Cart	V	.....	Covt	DP	Bos	GD	Full	3	Bld	Det	W	Timk	½ Fl	7.7	23.25	Ros	36x3½	36x5	...	Bim	Gdy	3440	140
Triangle A	2390	Buda WU	3¾x5½	22.5	L	C	Sim	Fin	FS	Strm	V	.....	Covt	DP	Eis	.....	Full	3	Sned	Det	W	Russ	D	6.15	22.5	Ros	35x5*	38x7*	...	Smi	.....	3800	140
Triumph	1995	Wau BUX	3¾x5¼	22.5	L	C	Wau	Fin	FS	Strm	V	.....	Full	DD	Spl	.....	Covt	3	M-E	Det	W	Cl	½ Fl	7.25	29	Ros	35x5*	35x5*	...	Pru	Fir	3750	135
Ultimate A	1980	Buda MU	3¾x5½	22.5	L	C	Own	PT	F	Strm	V	Pier	Full	DD	Eis	.....	Full	3	UP	Det	W	Shel	½ Fl	7.25	21.7	Jac	34x3½	34x5	...	Day	Fir	4520	142
*United A	3150	Buda ITU	4 x5½	25.6	L	C	Own	PT	F	Strm	V	Pier	Full	DD	Eis	.....	Cott	3	Spic	Det	W	Wis	½ Fl	7.8	.....	Ros	34x3½	34x5	...	.....	.....	3400	128
Ursus G 40	2445	Buda CTU	3¾x5¼	22.5	L	C	Mod	PT	F	Strm	V	Pier	Full	DD	Eis	.....	Full	3	Bld	Ther	W	Shel	D	7.6	22.8	Gem	34x3½†	34x5†	...	Roy	Fir	3700	130
	2500	Buda CTU	3¾x5¼	22.5	L	C	Mod	PT	F	Strm	V	Pier	Full	DD	Eis	.....	Full	3	Bld	Det	W	Timk	½ Fl	7.7	23.25	Ros	36x3½	36x5	...	Bim	Gdy	4000	140
																			Sned	Det	W	Russ	D	6.15	22.5	Ros	35x5*	38x7*	...	Smi	.....	3750	135
																			M-E	Det	W	Cl	½ Fl	7.25	21.7	Jac	34x3½	34x5	...	Pru	Fir	4520	142
																			UP	Det	W	Shel	½ Fl	7.8	.....	Ros	34x3½	34x5	...	Day	Fir	3400	128
																			Spic	Det	W	Wis	Shel	7.25	21	Ros	34x3½	34x6	...	Soh	Roy	3700	130
																			Bld	Ther	W	Shel	Cl	7.25	.....	Gem	34x3½	34x6	...	Stn	Bim	4000	140
																			Ther	Det	W	Shel	Opt	7.25	21	Lav	36x3½	36x6	...	Sch	Fir	3750	144
																			Shel	Det	W	Shel	...	9.5	34.2	Ros	36x3½	36x8	...	Jon	Fir	.....	152
																			Shel	Det	W	Shel	...	9.5	30.4	Ros	34x5	36x8	...	Pru	Fir	4500	140
																										Ros	34x5	36x8	...	Bos	Fir	4000	140
U. S.-N	.....	Cont N	3¾x5	22.5	L	C	Lng	Fin	FS	Strm	V	.....	Full	DD	Eis	Op	Full	U	3	Opt	Shel	Shel	...	...	...	...	...	...	...	...	...	...	...	...
U. S.-N. C	.....	Cont N	3¾x5	22.5	L	C	Lng	Fin	FS	Strm	V	.....	Full	DD	Eis	Op	Full	U	3	Opt	Shel	Shel	...	...	...	...	...	...	...	...	...	...	...	...
		Cont N	3¾x5	22.5	L	C	Lng	Fin	FS	Strm	V	.....	Full	DD	Eis	Op	Full	U	3	Opt	Shel	Shel	...	...	...	...	...	...	...	...	...	...	...	...

| | | |

Trade Name and Model	Chassis Price	ENGINE DETAILS: Make and Model Number 4 Cylinder unless otherwise noted	Bore and Stroke	N. A. C. C. Horsepower	Valve Arrange't	How Cooled	Radiator (Make)	Radiator (Type)	Lubrication	Carburetor	Fuel Feed	Governor (Make)	Clutch (Make)	Clutch (Type)	Ignition System	Engine Starter	GEARSET: Make	Location	Speeds	Universal (Make)	Springs (Make)	REAR AXLE: Final Drive	Make	Type	Total Gear Reduction in High	Total Gear Reduction in Low	Steering Gear (Make)	TIRES, WHEELS, RIMS: *Pneumatic †Dual Front	Rear	Wheels (Make)	Rim Equipment	Chassis Weight (Stripped)	Wheelbase
		1		2	3	4	5	6	7	8	9	10	11	12	13	14	15		16	17	18	19	20			21			22	23		
2 Ton—Con'd																																	
*Stewart 7	2190	Cont C2	4 1/16x5 1/4	27.2	L	G	Bus	Fin	FS	Zen	G	Pier	Full	DP	Eis	.....	Full	U	3	Hart	Det	I	Cl	D	9	27	Ros	34x4†	34x7†	Cla	Gdy	4460	156
Stoughton D	2800	Her CU3	4 x5 1/2	25.6	L	C	Own	Fin	F	Strm	G	Dup	B-Li	DD	Eis	.....	B-Li	U	4	Ther	Shel	W	Shel	1/2 Fl	8.66	35	Ros	36x4	36x7	Bim	Fir	4600	140
Superior E	2600	Cont C2	4 1/16x5 1/4	27.2	L	A	Idl	C	F	Strm	V	Pier	Full	DD	Eis	.....	Full	U	4	Arv	Tut	I	Torb	D	8	23.2	Ros	36x4	36x6	Sch	Fir	3600	144
Titan 2	.....	.....	4 x5 1/2	25.6	L	C	BW	PT	F	Strm	G	Sim	B.B.	DD	Eis	.....	Cott	U	4	Pet	Shel	I	Own	D	8	42	Woh	34x4	36x7†	Bim	.....	4400	156
Traffic 4000C	1595	Cont N4	3 3/4 x5	22.5	L	T	Own	C	FS	Cart	G	.....	Covt	DP	Bos	.....	Covt	U	3	Ther	Det	I	Russ	D	7	25.62	Own	34x3 1/2	34x5	Opt	Fir	3175	132
*Transport 35	1885	Cont N	3 3/4 x5	22.5	L	T	.....	.....	FS	Strm	G	Dup	Full	DP	Eis	.....	Full	...	4	Hart	Det	I	Cl	.....	7.6	36.4	Jac	36x3 1/2	36x6	.....	.....	4000	140
Traylor C	2850	Buda ITU	4 x5 1/2	25.6	L	P	GO	Fin	F	Zen	G	Pier	Covt	DD	Spl	.....	Covt	U	3	M-E	Mer	W	Shel	1/2 Fl	7.75	.....	Ros	36x4	36x7	Sch	.....	5100	146
Triangle C	2285	Wau BUX	3 3/4 x5 1/4	22.5	L	C	Per	ZZT	FS	Strm	G	Wau	Full	DD	Eis	.....	Full	U	3	UP	Det	I	Cl	D	9.1	27	Gem	36x4	36x7	Roy	Fir	4200	147
Triumph 2	2550	Buda CTU	3 3/4 x5 1/4	22.5	L	C	Mod	PT	F	Kng	V	Pier	B.B.	D	Spl	.....	Cott	U	4	UP	Tut	W	Wis	1/2 Fl	7.75	40.3	Lav	36x4	36x7	Stn	Stn	5000	144
Twin City	2750	Buda ITU	4 x5 1/2	25.6	L	C	Spi	H	F	Sheb	V	Sim	Full	D	Bos	.....	Full	U	3	Arv	Math	I	Cl	D	8	32	Ros	36x6	40x8	Bim	Fir	4800	150
Ultimate AJ	3200	Buda HTU	4 1/4 x5 1/2	28.9	L	C	Own	PT	F	Strm	G	Pier	B-Li	DD	Eis	Bos	B-Li	U	4	Spic	Shel	W	Shel	1/2 Fl	6.5	34.7	Ros	35x5*	38x7*	Jon	Fir	4500	140
Ultimate AJL	3250	Buda HTU	4 1/4 x5 1/2	28.9	L	C	Own	PT	F	Strm	G	Pier	B-Li	DD	Eis	Bos	B-Li	U	4	Spic	Shel	W	Shel	1/2 Fl	6.5	34.7	Ros	35x5*	38x7*	Jon	Fir	4590	156
Vim 22	3150	Her C2	3 3/4 x5 1/2	22.5	L	P	McC	Fin	F	Zen	G	Dup	B-Li	D	Spl	.....	B-Li	U	4	Spic	Shel	W	Shel	.....	7.75	.....	Gem	36x4	36x6	Smi	.....	4700	142
Walker-Johnson A	.....	Buda WU	3 3/4 x5 1/2	22.5	L	C	Bus	Fin	F	Zen	V	.....	Full	DD	Eis	.....	Full	U	3	Spic	SP	W	Timk	1/2 Fl	7.75	.....	Ros	34x3 1/2	34x6	Jon	.....	4150	144
Walter N	3750	Own FU	4 x5 1/4	25.6	L	C	Bus	PT	F	Strm	G	Wau	B-Li	D	Eis	W	B-Li	A	4	Own	.....	.....	Own	Flot	7.25	36	Gem	36x4	36x7	.....	.....	5500	144
White 20	3250	Own	3 3/4 x5 1/2	22.5	L	C	.....	C	FS	Own	G	.....	Own	D	.....	.....	Own	A	4	Own	.....	R	Own	1/2 Fl	.....	.....	Own	36x4	36x7	.....	.....	4500	157
Wichita M	2400	Wau BX	3 3/4 x5 1/4	22.5	L	G	.....	PT	F	Strm	G	Wau	Own	C	Wag	.....	B-Li	A	4	Own	Det	W	Shel	1/2 Fl	8.6	45.03	Ros	36x3 1/2	36x6	Bim	Fir	4400	144
*Wisconsin (Loganville)	1450	HSp 7000	3 1/2 x5	19.6	L	T	.....	.....	FS	Strm	V	.....	B.B.	WP	Bos	Dy	Det	U	3	UP	Har	I	Torb	D	8.	.....	Lav	34x5*	36x6*	.....	.....	3200	136
Witt Will P	2750	Cont C4	4 1/16x5 1/4	27.2	H	G	Mod	Opt	FS	Zen	G	Pier	B-Li	DD	Eis	.....	B-Li	U	3	Spic	Del	W	Tim	Flot	7.75	.....	Ros	36x3 1/2	36x7	Arc	.....	5000	144
Wolverine J2	2640	Cont J4	3 3/4 x5	22.5	L	G	Lng	Fin	F	Strm	G	Phar	Full	DD	Eis	Bos	Full	U	3	UP	Am	I	Russ	D	8.8	35.2	Gem	34x4	34x7	Hay	Gdy	4300	148
2 1/2 Ton																																	
Acason H	.....	Wau CU	4 5/16x5 3/4	30.6	L	P	Can	C	FS	Sheb	V	Wau	Det	.....	Eis	.....	Cott	A	4	Bld	Det	W	Timk	Flot	7.75	40.3	Ros	36x4	36x8	Sch	Opt	5400	150
Ace 2 1/2	.....	Buda HU	4 1/4 x5 1/2	28.9	L	C	Mod	ZZT	F	Zen	V	Pier	Full	DP	Eis	W	Full	A	4	UM	Math	W	Timk	Flot	8.50	34	Ros	36x4	36.7	Day	Fir	5630	156
Acme 60	.....	Cont IK4	4 1/16x5 1/4	27.2	L	C	GO	Fin	F	Rayf	V	Dup	B.B.	DP	Eis	DJ.	Cott	U	4	Bld	Det	W	Timk	Flot	9.25	48.10	Ros	36x4	36x7	Bim	.....	4830	148
American	3350	Wis	4 x6	25.6	L	G	GO	Fin	F	Strm	G	Own	Det	D	Apo	.....	Cott	U	4	Acm	SP	W	Thom	Flot	8.33	.....	Ros	36x4	34x4†	.....	.....	5000	158
Apex E	2695	Buda HU	4 1/4 x5 1/2	28.9	L	G	GO	C	F	Strm	V	Dup	Full	D	Eis	Op	Full	U	3	Bld	Det	I	Torb	D	9	27	Lav	36x4	36x7	Roy	Fir	4500	150
Armleder HW	3200	Buda HTU	4 1/4 x5 1/2	28.9	L	P	Lng	Fin	F	Zen	G	Phar	B-Li	DD	Bos	W	B-Li	U	4	Spic	Math	W	Timk	Flot	9.25	49.5	Ros	36x4	36x7	StM	.....	4900	148
Armleder HW	3200	Cont C4	4 1/16x5 1/4	27.2	L	P	Lng	Fin	S	Zen	G	Phar	B-Li	DD	Bos	W	B-Li	U	4	Spic	Math	W	Timk	Flot	9.25	49.5	Ros	36x4	36x7	StM	.....	4900	148
Atco A	.....	Bud HU	4 1/4 x5 1/2	28.9	L	C	Chic	PT	F	Strm	G	Pier	Full	D	Eis	.....	Full	A	4	Hart	Shel	W	Wis	.....	8.7	41.6	Ros	36x4	36x7	Smi	.....	4900	150
Atterbury 7CX LWB	3275	Cont C4	4 1/16x5 1/4	27.2	L	C	Own	Fin	S	Zen	G	Mon	B-Li	DD	Ber	.....	B-Li	U	4	Spic	SP	W	Timk	Flot	9.25	44.77	Gem	36x4	36x4†	Arc	Fir	5520	171
Atterbury 7CX STD	3175	Cont C4	4 1/16x5 1/4	27.2	L	C	Own	Fin	S	Zen	G	Mon	B-Li	DD	Ber	.....	B-Li	U	4	Spic	SP	W	Timk	Flot	9.25	44.77	Gem	36x4	36x4†	Arc	Fir	5360	153
Available 2 1/2	3160	Her CU3	4 x5 1/2	25.6	L	C	Chic	Fin	FS	Strm	V	Pier	B-Li	DD	Bos	.....	B-Li	A	4	M-E	Tut	W	Timk	Flot	7.75	40.3	Ros	36x4	36x8	Sch	.....	4750	152
Bell O	2550	Buda	4 1/4 x5 1/2	28.9	L	C	Chic	PT	F	Strm	V	Dup	B.B.	DP	Eis	.....	Det	U	3	UP	Det	I	Russ	D	8	38.4	Gem	34x4	34x7	Bim	Fir	4200	146
*Bessemer J2	.....	Cont C2	4 1/16x5 1/4	27.2	L	C	Std	C	FS	Strm	G	Pier	B.B.	DP	Bos	.....	B-Li	A	4	Arv	Per	R	LM	1/2 Fl	.....	.....	Ros	36x4	36x4†	Sch	Fir	4800	158
Bridgeport 2 1/2 B	2990	Buda HTU	4 1/4 x5 1/2	28.9	L	G	Own	Fin	FS	Strm	G	Pier	B.B.	D	Eis	.....	B-Li	U	4	Hart	Per	W	Timk	Flot	8.25	.....	Ros	36x4	36x4†	Jon	Fir	5500	156
*Brinton D	2975	Cont C4	4 1/16x5 1/4	27.2	L	C	Chic	PT	F	Strm	G	Pier	B-Li	D	Bos	.....	B-Li	U	3	Spic	Tut	W	Timk	Flot	.....	33.6	Ros	36x4	36x6	Smi	.....	4900	150
Brockway K5	.....	Cont K4	4 1/16x5 1/4	27.2	L	C	Bus	Fin	F	Strm	V	Phar	B-Li	DD	Eis	.....	B-Li	A	4	Spic	Mer	W	Timk	Flot	7.75	41.5	Gem	36x4	36x8	Hoo	.....	5260	153
Buffalo Model 6	3400	Her CU-3	4 x5 1/8	25.6	L	C	Own	T	F	Zen	V	Sim	Covt	D	Bos	Bos	Covt	.....		Spic	Shel	W	Shel	1/2 Fl	8.75	.....	Ros	Opt	Opt	Wan	Gdy	6200	Op
Capitol H 2 1/2	3700	WisUAU	4 1/4 x6	28.9	L	C	GO	Fin		Strm	G	Sim	Det	DD	Bos	.....	Cott	U	4	Spic	Sp	W	Wis	1/2 Fl	8.66	45	Ros	36x4	36x8	.....	.....	5200	156
Capitol K2 1/2	4250	Wis UAU	4 1/4 x6	28.9	L	C	GO	Fin	F	Strm	G	Sim	Det	DD	Bos	W	Cott	U	4	Spic	SP	W	Wis	1/2 Fl	7.25	37.7	Ros	36x6*	42x9*	.....	Fir	5100	156
Chicago C2 1/2	.....	Her CU3	4 x5 1/2	25.6	L	C	Brm	PT	F	Strm	G	Sim	B-Li	D	Bos	.....	B-Li	U	4	Pet	Math	W	Timk	Flot	7.75	34	Gem	36x4	36x7†	Opt	Stn	5200	156
Clydesdale 65EX	3450	Cont	4 1/16x5 1/2	32.4	L	C	Own	PT	FS	Zen	G	Own	B-Li	DD	Bos	.....	B-Li	A	4	Spic	Stan	W	Timk	Flot	8.5	41.1	Ross	36x4	36x4†	Smi	.....	5400	163
Clydesdale 65 X	3250	Cont	4 1/16x5 1/4	27.2	L	C	Own	PT	FS	Zen	G	Own	B-Li	DD	Bos	.....	B-Li	A	4	Spic	Stan	W	Timk	Flot	8.5	41.1	Ros	36x4	36x4†	Smi	.....	5140	163
Collier 22	.....	Cont C4	4 1/16x5 1/4	27.2	T	P	Lng	PT	FS	Zen	V	Pier	Full	DP	Eis	.....	Full	U	4	UP	Math	W	Timk	Flot	8.5	40.8	Ros	36x4	36x4†	Bim	Fir	5445	165
Commerce 18	2495	Cont C	4 1/16x5 1/4	26.2	L	C	Lng	Fin	S	Zen	V	.....	B&B	DP	Eis	Bj	B-Li	U	4	Spic	Am	I	Torb	D	7	28.8	.....	36x6	40x8	.....	Fir	4150	149
*Concord B	3600	Buda HTU	4 1/4 x5 1/2	28.9	L	C	Bus	PT	F	Zen	G	Mon	B-Li	DP	Eis	.....	B-Li	U	4	Spic	Per	W	Timk	Flot	9.25	37	Ros	36x4	36x8	Arc	Fir	5450	150
Corbitt B-22	3000	Cont C4	4 1/16x5 1/4	27.2	L	C	McC	Fin	FS	Strm	V	Sim	B-Li	DD	Eis	.....	B-Li	U	4	Hart	Shel	W	Shel	1/2 Fl	8.75	35	Ros	36x4	36x7	Bim	Fir	5325	152
Dart M	.....	Buda HU	4 1/4 x5 1/2	28.9	L	C	Own	C	F	Zen	G	Pier	Full	DD	Eis	.....	Full	U	4	Spic	Per	W	Own	.....	8.5	40.8	Ros	36x4	36x7	Pru	.....	4800	150
Day Elder C	2750	Buda HTU	4 1/4 x5 1/2	28.9	L	C	Bus	Fin	F	Zen	G	Mon	Covt	DD	Eis	.....	Covt	U	4	Hart	IC	W	Shel	1/2 Fl	8.75	41.56	Gem	36x4	36x7	Jon	Fir	4600	150
Dependable D	2650	Buda ITU	4 x5 1/2	25.6	L	C	Lng	Fin	F	Zen	V	Mon	Full	DD	Spl	AL	Full	U	3	Acm	Per	W	Wis	1/2 Fl	8.5	35.75	Ros	36x4	36x7	Bim	Fir	5300	144
Diamond T–U	2650	Hin	4 x5 1/4	25.6	L	C	GO	Fin	F	Strm	V	Own	Covt	DD	Bos	.....	Covt	U	4	Spic	Math	W	Timk	Flot	7.8	36.81	Gem	36x4	36x7	.....	.....	4800	160
*D-Olt C	3250	Midwest	4 1/16x5 1/4	27.2	H	C	G-O	PT	F	Zen	G	Dup	B-Li	DD	Bos	.....	B-Li	U	3	Spic	SP	W	Timk	.....	8.5	.....	Ros	36x5	36x4†	.....	.....	5350	168
Erie A 2 1/2	.....	Buda ETU	4 1/4 x5 1/2	28.9	L	C	Fed	C	FS	Zen	G	Dup	Full	D	Bos	.....	Full	A	4	Spic	Per	W	Shel	1/2 Fl	8.7	41.7	Ros	36x4	36x4†	Bim	Fir	5760	150
Facto	2295	Buda ETU	4 1/4 x5 1/2	28.9	L	C	Bus	PT	FS	Zen	V	Pier	Full	D	Spl	.....	Full	A	4	Spic	SP	W	Timk	Flot	7.75	33.9	Ros	36x4	36x8	Smi	Fir	5800	155
*Gary J	2650	Buda HTU	4 1/4 x5 1/2	28.9	L	C	Chic	Fin	FS	Mas	G	McC	Full	DD	Eis	.....	Full	U	4	Spic	Math	W	Timk	Flot	8.5	41	Ros	36x4	36x8	Pru	Gdy	4850	148
*Gersix K	3500	Buda HTU	4 1/4 x5 1/2	28.9	L	C	Idl	C	F	Strm	V	Mon	B.B.	.....	Bos	.....	Cott	U	3	Bld	Tut	W	Own	.....	9.6	39	Ros	36x4	36x8	Jon	.....	5270	150
Giant 16	3150	Cont C4	4 1/16x5 1/4	27.2	L	P	Own	.....	FS	Sheb	G	Mon	B-Li	DD	Eis	.....	B-Li	U	3	Spic	Math	W	Timk	Flot	8.8	29.09	Ros	36x4	36x7	Way	.....	4500	168
Giant 16	3050	Cont C4	4 1/16x5 1/4	27.2	L	P	Own	.....	FS	Sheb	G	Mon	B-Li	DD	Eis	.....	B-Li	U	3	Spic	Math	W	Timk	Flot	8.8	29.9	Ros	36x4	36x7	Way	.....	4500	144
*Hall 2 1/2 Worm	.....	Cont C4	4 1/16x5 1/4	27.2	L	P	Own	H	FS	Zen	G	Dup	B-Li	DP	Bos	.....	B-Li	U	3	Opt	Det	W	Timk	Flot	7.7	.....	Gem	36x4	36x4	Smi	.....	4525	156
Harvey WFA	2950	Buda ETU	4 1/4 x5 1/2	28.9	L	C	Own	Fin	F	Strm	G	McC	Full	DD	Eis	.....	B-Li	A	4	Spic	Shel	W	Shel	1/2 Fl	7.75	37.5	Ros	36x4	36x7	StM	.....	5900	160
Hendrickson N	2690	Buda ETU	4 1/4 x5 1/2	28.9	L	C	Chic	PT	F	Strm	G	McC	Full	D	Spl	.....	Full	A	4	Ther	Tut	W	Timk	Flot	7.7	37.2	Ros	36x4	36x7	Stn	.....	.....	Op
H. R. L., H.	3650	Hink HAA	4 x5 1/4	25.6	L	C	Fed	Fin	F	Zen	V	Hink	B-Li	DP	Bos	GD	B-Li	U	4	Spic	Shel	W	Shel	.....	8.75	30.	Ros	36x4	36x4†	Sch	Gdy	5310	154
Hurlburt 2 1/2	.....	Buda HU	4 1/4 x5 1/2	28.9	L	C	Own	.....	F	Fleh	G	Dup	B-Li	D	Eis	.....	B-Li	U	3	Spic	Per	W	Own	.....	.....	.....	Ros	36x4	36x4	Way	.....	5600	170
Huron-Michigan	.....	Buda ETU	4 1/4 x5 1/2	28.9	L	C	.....	Fin	F	Zen	V	Pier	B.B.	D	Bos	.....	Cott	U	4	Det	Det	I	Cl	D	8	41.6	Jac	36x6*	40x8*	AuW	Fir	.....	156
Independent HI (Iowa)	2940	Cont C4	4 1/16x5 1/4	27.2	L	C	GC	PT	FS	Strm	V	.....	Full	DD	Bos	.....	Full	U	4	Bld	GC	I	Russ	D	10	.....	Lav	36x4	36x7	StM	Fir	4950	156
Independent H (Ohio)	3085	Cont K4	4 1/16x5 1/4	27.2	L	C	Lng	PT	F	Strm	G	.....	Full	DP	Eis	.....	Full	U	4	Spic	Math	W	Wis	.....	9.6	39	Ros	36x4	36x8†	.....	.....	4600	148
Indiana 25	.....	Own 38	4 1/16x5 1/2	27.2	L	C	McC	Fin	F	Strm	G	Pier	B.B.	DP	Eis	.....	B-Li	A	4	Spic	Shel	W	Shel	1/2 Fl	7.75	41.3	Woh	36x4	36x8	Day	.....	5850	156
Kalamazoo HD	3350	Wis UAU	4 1/4 x6	28.9	L	P	GO	PT	F	Strm	V	Pier	Full	D	Bos	Dy	Full	A	4	B.B.	Shel	W	Shel	1/2 Fl	9.5	57	Ros	36x5	36x10	Smi	.....	6400	144
Kalamazoo NH	3145	Wis TAU	4 x6	25.6	L	C	GO	PT	F	Strm	V	Pier	Full	D	Bos	Dy	Full	A	4	B.B.	Shel	W	Shel	1/2 Fl	8.75	42.8	Ros	36x5	36x10	Smi	.....	6200	...
Kelly Springfield K35	2900	Own	3 3/4 x5 1/4	22.5	L	C	Lng	Fin	F	Zen	G	Pier	Own	C	Eis	W	Covt	A	3	Own	Per	C	Own	D	10.6	35.11	Gem	36x4	36x4†	StM	.....	5000	Op
* Kelly Springfield K38	2900	Own	3 3/4 x5 1/4	22.5	L	C	Lng	Fin	F	Zen	G	Pier	B&B	D	Eis	W	Covt	A	4	Spic	Per	W	Own	1/2 Fl	10.3	34.2	Gem	36x4	36x4†	StM	.....	5200	Op
*Kimball AC	3975	Wis UAU	4 1/4 x6	28.9	L	C	Flex	PT	F	Zen	V	Sim	B-Li	DP	Spl	W	B-Li	A	4	Spic	US	W	Shel	1/2 Fl	7.75	37.31	Ros	36x4	36x8	Smi	Fir	5000	Op
Kissel Freighter	3875	Own 50000*	4 1/4 x5 1/4	28.9	L	C	McC	PT	S	Strm	V	Pier	W-Gr	DP	Eis	.....	W-Gr	A	4	Spic	Mat	W	Timk	Flot	8.5	42.5	Jac	36x4	36x7	Pru	.....	5100	168
Kleiber B	.....	Cont L4	4 1/16x5 1/4	32.4	L	C	RT	PT	FS	Strm	G	Sim	.....	DD	Bos	.....	B-Li	A	4	Spic	.....	W	Timk	Flot	7.75	37.51	Ros	36x5	36x8	Sm	.....	6000	160
	3175	Her	4 x5 1/2	25.6	L	G	Own	PT	F	Zen	G	Sim	B-Li	DD	Spl	.....	B-Li	A	4	Spic	Math	W	Timk	Flot	9.25	37	Lav	36x4	36x7	Way	.....	6050	162

| | | |

Trade Name and Model	Chassis Price	ENGINE DETAILS: Make and Model Number 4 Cylinder unless otherwise noted	Bore and Stroke	N. A. C. C. Horsepower	Valve Arrange't	How Cooled	Radiator (Make)	Radiator (Type)	Lubrication	Carburetor	Fuel Feed	Governor (Make)	Clutch (Make)	Clutch (Type)	Ignition System	Engine Starter	GEARSET: Make	Location	Speeds	Universal (Make)	Springs (Make)	REAR AXLE: Final Drive	Make	Type	Total Gear Reduction in High	Total Gear Reduction in Low	Steering Gear (Make)	TIRES, WHEELS, RIMS: *Pneumatic †Dual Front	Rear	Wheels (Make)	Rim Equipment	Chassis Weight (Stripped)	Wheelbase
3 Ton—Con'd		1		2	3	4	5	6	7	8	9	10	11	12	13	14	15		16	17	18	19	20			21			22	23		
Traylor D	3300	Buda HTU	4¼x5½	28.9	L	P	GO	Fin	F	Zen	G	Pier	M-E	DD	Spl	.....	Own	...	4	M-E	Mer	W	Shel	½Fl	7.7	.....	Ros	36x4	36x8	Sch	.....	5850	150
Ultimate BL	3800	Buda HTU	4¼x5½	28.9	L	C	Own	PT	F	Strm	G	Pier	B-Li	DD	Eis	Bos	B-Li	U	4	Spic	Shel	W	Shel	½Fl	7.75	30.2	Ros	36x4	36x8	Jon	Fir	5590	178
U. S., R	.....	Own	4 x5¼	25.6	L	C	Lng	Fin	F	Strm	V	Own	B-Li	DD	Eis	Op	B-Li	A	4	Opt	Shel	W	Shel	½Fl	8.7	41.5	Lav	36x4	36x4†	Sch	.....	5500	156
Vim 23	3950	Her M2	4¼x5½	28.9	L	P	McC	Fin	F	Zen	G	Dup	B-Li	D	Spl	.....	B-Li	A	4	Spic	Shel	W	Shel	.....	7.75	.....	Gem	36x5	36x5†	Smi	.....	6370	175
Wichita RX	3200	Wau CU	4¾x5¾	30.6	L	G	.....	PT	F	Strm	G	Wau	Own	C	Wag	.....	B-Li	A	4	Own	Det	W	Shel	½Fl	8.75	45.5	Ros	36x4	36x8	Smi	Fir	5900	160
Wither 51	.....	Wis TAU	4 x6	25.6	L	P	Brm	PT	F	Mas	V	....	BB	DP	Eis	W	B-Li	A	4	Bld	Math	I	Cl	D	8	40	Ros	34x4	34x4	Own	.....	5300	150
3½ Ton																																	
Acason L	.....	Wau CU	4¾x5¾	30.6	L	G	Can	C	FS	Sheb	V	Wau	Det	.....	Eis	.....	Cott	A	4	Bld	Det	W	Timk	Flot	8.75	48.5	Ros	36x5	36x5†	Smi	Opt	7000	180
Apex F	3975	Buda YTU	4½x6	32.4	L	P	GO	C	F	Strm	V	Dup	Full	D	Eis	Opt	Full	A	4	Bld	Det	I	Torb	D	10.5	.....	Woh	36x5	36x10	Roy	Fir	6940	168
Armleder KW	4150	Buda YTU	4½x6	32.4	L	P	Own	Fin	F	Zen	G	Phar	B-Li	DD	Bos	.....	B-Li	U	4	Spic	Math	W	Timk	Flot	10.33	55.25	Ros	36x5	36x5†	StM	.....	6900	156
Armleder K W	4150	Cont E4	4½x5½	32.4	L	C	Own	Fin	S	Zen	G	Phar	B-Li	DD	Bos	.....	B-Li	U	4	Spic	Math	W	Timk	Flot	10.33	55.25	Ros	36x5	36x5†	StM	.....	6900	156
Atterbury 7D-LWB	4075	Cont E4	4½x5½	32.4	L	C	Own	Fin	S	Zen	G	Mon	B-Li	DD	Ber	.....	B-Li	U	4	Spic	SP	W	Timk	Flot	10.3	49.85	Gem	36x5	40x5†	Arc	Fir	7270	192
Atterbury 7D-Standard	3975	Cont E4	4½x5½	32.4	L	C	Own	Fin	S	Zen	G	Mon	B-Li	DD	Ber	.....	B-Li	U	4	Spic	SP	W	Timk	Flot	10.3	49.85	Gem	36x5	40x5†	Arc	Fir	6950	167
Autocar Y	3950	Own Y	4¼x5½	28.9	L	C	Own	Fin	S	Strm	G	.....	Own	DP	.....	.....	Own	A	4	.....	.....	R	Own	Flot	8.7	52.2	Ros	34x5	36x10	Hoo	.....	7000	120
Autocar B	4100	Own B	4¼x5½	28.9	L	C	Own	Fin	S	Strm	G	.....	Own	DP	.....	.....	Own	A	4	.....	.....	R	Own	Flot	8.7	52.2	Ros	34x5	36x10	Hoo	.....	7150	156
Available H3½	4175	Her MU3	4½x5½	32.4	L	C	Chic	Fin	FS	Strm	V	Pier	B-Li	DD	Bos	.....	B-Li	A	4	M-E	Tut	W	Timk	Flot	10.33	49.99	Ros	36x5	40x5†	Sch	.....	6500	176
Bridgeport 4C	3990	Buda YTU	4½x6	32.4	L	G	Own	Fin	FS	Strm	V	Pier	B.B.	D	Eis	.....	B-Li	A	4	Hart	Per	W	Eat	.....	9.25	.....	Ros	36x5	36x10	Jon	Fir	10500	170
Brockway R-4	.....	Cont L4	4½x5½	32.4	L	C	Bus	Fin	F	Strm	V	Phar	B-Li	DD	Eis	.....	B-Li	A	4	Spic	Mer	W	Timk	Flot	8.75	46.8	Gem	36x5	36x5†	Smi	.....	6800	164
Capitol M-3½	4425	Wis UAU	4¼x6	28.9	L	C	GO	Fin	F	Strm	G	Sim	Det	DD	Bos	.....	Cott	U	4	Spic	SP	W	Wis	½Fl	9	46.8	Ros	36x5	36x10	Smi	.....	6400	168
Chicago C3½	.....	Her MU3	4½x5½	32.4	L	C	Brm	PT	FS	Strm	G	Sim	B-Li	D	Bos	.....	B-Li	A	4	Pet	Math	W	Timk	Flot	9.33	50	Gem	36x5	36x10	Opt	Sta	7200	168
*Clydesdale 90	4100	Cont	4½x5½	32.4	L	C	Own	PT	FS	Zen	G	Own	B-Li	DD	Bos	.....	B-Li	A	4	Spic	Stan	W	Timk	Flot	10.33	55.2	Ros	36x5	40x5†	Smi	.....	7600	160
Dart W	.....	Buda YTU	4½x6	32.4	L	C	Own	C	F	Zen	G	Pier	Full	DD	Eis	.....	Full	A	4	Spic	Per	W	Own	.....	8.7	52.5	Ros	36x5	36x10	Pru	.....	6740	160
Day Elder F	3150	Cont E4	4½x5½	32.4	L	C	Bus	Fin	FS	Zen	G	Mon	B-Li	DD	Eis	.....	B-Li	U	4	Hart	IC	W	Shel	½Fl	10.25	41	Gem	36x5	36x5†	Jon	Fir	5600	165
*Dependable G 3½	3550	Buda YTU	4½x6	32.4	L	C	Lng	Fin	F	Zen	V	Mon	Full	DD	Spl	AL	Full	A	4	Acm	Per	W	Wis	½-Fl	10	47.61	Ros	36x6	36x10	Bim	Fir	6000	165
Diamond T-K	3750	Hin	4¼x5½	28.9	L	C	GO	Fin	F	Strm	V	Own	Covt	DD	Bos	.....	Covt	A	4	Spic	Math	W	Timk	Flot	8.8	44.36	Gem	36x5	36x5†	.....	.....	7250	170
Dixon	4070	Cont E4	4½x5½	32.4	L	C	GO	PT	FS	Zen	G	Pier	Full	.....	Apo	.....	Full	U	4	Hart	IC	W	Timk	Flot	Opt	Opt	Ros	36x5	36x10	Smi	.....	6650	160
*Dorris K7	4400	Own	4¼x5½	28.9	H	C	McC	Fin	F	Strm	G	Own	Own	DP	Bos	W	W-Gr	A	4	Spic	Row	W	Timk	Flot	10.33	51.5	Ros	36x5	36x10	Smi	.....	6750	194
Duplex E	3500	Buda TU	4¼x5½	28.9	H	P	Lng	ZZT	FS	Sheb	V	Dup	B-Li	DD	Eis	.....	B-Li	U	4	Pet	Tut	I	Own	D	8	64	Woh	36x8	36x8	Pru	.....	6075	130
Federal WE	3150	Cont E4	4½x5½	32.4	L	C	Own	Fin	FS	Zen	G	Phar	B.B.	DP	Eis	.....	Own	A	4	Spic	Math	W	Timk	Flot	10.33	51.56	Gem	36x5	36x5†	Smi	Fir	6990	156
Garford 77D	3750	Buda YTU	4½x6	32.4	L	C	Own	Fin	F	Strm	G	Sim	.....	DD	Spl	.....	Own	A	4	Spic	Per	W	Timk	Flot	8.7	.....	Ros	36x5	36x5†	Smi	.....	7700	162
*Gary KT	3650	Buda YTU	4½x6	32.4	L	C	Chic	Fin	F	Mas	G	McC	B-Li	DD	Eis	.....	B-Li	A	4	Spic	Math	W	Timk	Flot	10.33	50	Ros	36x5	40x5	Pru	.....	7000	162
Giant 17	4150	Cont E4	4½x5½	32.4	L	P	Own	.....	B	Strm	G	Mon	.....	DD	Eis	.....	B-Li	A	4	Spic	Shel	W	Timk	Flot	10.25	49.61	Ros	36x5	36x5†	Way	.....	6800	176
G. M. C. K-71A	3600	Own	4½x6	32.4	L	B	Own	Fin	F	Mar	G	Own	Own	DD	Eis	Opt	Own	A	7	Own	Det	W	Timk	Flot	8.75	75.2	Own	36x5	40x5†	Own	.....	7714	163
G.M.C. K-71B	3700	Own	4½x6	32.4	L	B	Own	Fin	F	Mar	G	Own	Own	DD	Eis	Opt	Own	A	7	Own	Det	W	Timk	Flot	8.75	75.2	Own	36x5	40x5	Own	.....	7820	187
*Gramm-Pioneer 75P	4225	Hink HA200	4½x5½	32.4	L	C	Own	Fin	F	Strm	V	Hink	Own	DD	Eis	NE	Own	A	4	Own	Per	W	Shel	½Fl	9.5	45	Ros	36x6*	42x9*	Smi	.....	6000	150
Hal-Fur B	3000	Hin HA-500	4¼x5½	28.9	L	C	GO	PT	F	Strm	V	Hin	B.B.	P	Bos	W	Own	A	4	Pet	Per	W	Timk	Flot	7.75	57.4	Gem	36x6	Opt	Smi	Fir	5000	Op
Hal-Fur F	4000	Hin AA 1600	4½x5½	32.4	H	C	GO	PT	F	Strm	V	Hin	B.B.	DP	Bos	W	Own	A	4	Pet	Mer	W	Timk	Flot	10.33	72	Gem	36x5	40x10	.....	.....	6500	180
*Hall 3½ Worm	.....	Cont E4	4½x5½	32.4	L	T	Own	PT	FS	Zen	G	Dup	B-Li	DP	Bos	.....	B-Li	A	..	Opt	Det	W	Timk	Flot	10	.....	Gem	36x5	36x5†	Smi	.....	6525	144
Harvey WHA	3950	Buda YTU	4½x6	32.4	L	C	Own	Fin	F	Strm	G	McC	Full	DD	Eis	.....	B-Li	A	4	Spic	Shel	W	Shel	½Fl	8.75	46.8	Ros	36x5	36x5†	StM	.....	7600	160
Hendrickson M	3000	Buda ETU	4¼x5½	28.9	L	C	Chic	PT	F	Strm	G	McC	Full	DD	Spl	.....	Full	A	4	Ther	Tut	W	Timk	Flot	10	49.6	Ros	36x5	36x5...	Stn	.....	.....	Op
Hurlburt	.....	Buda YTU	4½x6	32.4	L	C	Own	.....	FS	Flch	G	Dup	B-Li	D	Eis	.....	B-Li	A	4	Spic	Per	W	Own	Flot	8.7	41.91	Ros	36x5	36x5	Way	.....	7400	156
Independent K, (Ohio)	3985	Cont L4	4½x5½	32.4	L	G	Lng	PT	FS	Strm	G	....	Full	DP	Eis	.....	Full	U	4	Spic	Mat	W	Wis	.....	10	48	Ros	36x5	36x10†	.....	.....	5400	160
Indiana 35	.....	Own 40	4¼x5½	30.6	L	G	McC	Fin	F	Strm	G	Pier	B.B.	DP	Eis	.....	B-Li	A	4	Spic	Shel	W	Shel	½Fl	10.2	54.84	Woh	36x5	36x5†	Smi	.....	7050	160
Jackson B	3850	Cont E4	4½x5½	32.4	L	G	Lng	Fin	FS	Strm	V	Pier	B.B.	DP	Eis	Dy	Own	A	4	Spic	Per	B	Own	Flot	9.2	43.49	Ros	36x7	36x7	.....	.....	7400	150
Kalamazoo SK	3845	Wis UAU	4¼x6	28.9	L	G	GO	PT	F	Strm	V	Pier	Full	D	Bos	Dy	Full	A	4	B.B.	Shel	W	Shel	½Fl	10.25	61.5	Ros	36x5	36x12	Smi	.....	7800	160
Kelly-Springfield K-40	3900	Own	4½x6½	32.4	T	C	Lng	Fin	F	Zen	G	Pier	B&B	D	Eis	W	Covt	A	3	Own	Per	C	Own	D	10.49	31.69	Gem	36x5	40x5†	StM	.....	7730	Op
*Kelly-Springfield K-41	3900	Own	4½x6½	32.4	T	C	Lng	Fin	F	Zen	G	Pier	B.B.	D	Eis	W	Covt	A	4	Pet	Per	I	Cl	D	10	50.7	Gem	36x5	36x10	Cla	.....	7900	Op
Kelly-Springfield K-42	3900	Own	4½x6½	32.4	T	C	Lng	Fin	F	Zen	G	Pier	B.B.	D	Eis	W	Covt	A	4	Pet	Per	W	Eat	½Fl	10.25	51.97	Gem	36x5	40x5†	Smi	.....	8500	Op
Kleiber C	.....	Cont L4	4½x5½	32.4	L	G	RT	PT	FS	Strm	G	Sim	.....	DD	Bos	.....	B-Li	A	4	Spic	.....	W	Timk	Flot	8.75	42.35	Ros	36x5	36x10	Smi	.....	7200	163
Koehler F	4150	Her	4½x5½	32.4	L	G	Own	PT	F	Zen	G	Pier	B-Li	DD	Spl	.....	B-Li	A	4	Spic	Math	W	Timk	Flot	10.33	.....	Lav	36x5	36x10	Day	.....	7000	162
Larrabee L4	4000	Cont L4	4½x5½	32.4	L	C	R-T	Fin	S	Sheb	G	Phar	B-Li	DD	Bos	.....	B-Li	A	4	Spic	Mer	W	Shel	½Fl	10	53.5	Ros	36x5	36x5†	Smi	.....	7660	186
Mack AC 3½	4950	Own AC	5 x6	40	L	C	Own	Fin	S	Sheb	G	Own	Own	DP	Spl	.....	Own	UJ	3	Spic	Mer	C	Own	D	8.49	27.20	Own	36x5	40x5†	.....	.....	8070	Op
Master A	3990	Buda YTU	4½x6	32.4	L	C	Chic	PT	FS	Mas	V	Pier	B-Li	DP	Eis	.....	B-Li	A	4	Spic	Det	W	Timk	Flot	Opt	Opt	Ros	36x5	40x5†	Smi	.....	8000	158
Master AL	4090	Buda YTU	4½x6	32.4	L	C	Chic	PT	FS	Mas	V	Pier	B-Li	DP	Eis	.....	B-Li	A	4	Spic	Det	W	Timk	Flot	Opt	Opt	Ros	36x5	40x5†	Smi	.....	8200	194
Master E	4290	Buda YTU	4½x6	32.4	L	C	Chic	PT	FS	Mas	V	Pier	B-Li	DP	Eis	.....	B-Li	A	4	Spic	Det	R	Walk	Flot	Opt	Opt	Ros	36x5	40x5†	Wal	.....	8000	158
Master EL	4390	Buda YTU	4½x6	32.4	L	C	Chic	PT	FS	Mas	V	Pier	B-Li	DP	Eis	.....	B-Li	A	4	Spic	Det	R	Walk	Flot	Opt	Opt	Ros	36x5	40x5†	Wal	.....	8200	194
Menominee G	3800	Wis VAU	4½x6	32.4	L	C	Own	Fin	FS	Strm	G	Mon	Det	DP	Eis	Opt	Cott	A	4	Spic	Tut	W	Timk	Flot	10.3	53.71	Ros	36x5	36x10	Smi	Fir	6750	160
Nelson & LeMoon G 4	.....	Cont L4	4½x5½	32.4	L	C	Chic	Fin	F	Strm	G	Phar	B-Li	DD	Bos	W	B-Li	U	4	Own	Tut	W	Timk	Flot	8.7	42	Lav	36x5	36x5†	Pru	Gdy	6000	Op
*Noble E170	.....	Buda YTU	4½x6	32.4	L	C	Chic	Fin	F	Strm	G	Pier	Full	DP	Eis	W	W-Gr	A	4	M-E	Tut	W	Shel	½Fl	8.7	42	Lav	36x5	36x10	Bim	Fir	7200	182
Northway B3	4200	Own	4 x6	25.6	H	C	GO	C	F	Strm	V	Pier	Full	DP	Wag	Bj	Full	U	4	Spic	Per	W	Shel	½Fl	10	49.2	Ros	36x5	40x5†	Cla	Fir	7700	Op
Ogden F 3½	.....	Cont L4	4½x5½	32.4	L	C	Chic	Fin	F	Strm	G	Pier	B-Li	DD	Spl	.....	B-Li	A	4	M-E	Tut	W	Timk	Flot	10.33	.....	Ros	36x5	40x10	Stn	.....	7300	178
O.K. 3½ T	4250	Buda YTU	4½x6	32.4	L	G	RT	PT	FS	Zen	V	Pier	Full	DD	Eis	.....	Full	A	4	Hart	Cham	W	Wis	½Fl	10	60	Ros	36x5*	36x5†	Bim	.....	6350	164
*Old Reliable C	4250	Wis UAU	4¼x6	28.9	L	C	Chic	PT	F	Strm	V	Mon	Full	DD	Bos	.....	Full	A	4	Pet	Shel	W	Shel	½Fl	8.75	52.5	Ros	36x5	36x5†	StM	.....	6650	168
Oneida D	4050	Hin 200	4½x5½	32.4	L	C	Mod	C	F	Strm	V	Hin	Full	.....	Apo	.....	Full	A	4	Pet	Math	W	Timk	Flot	10.33	49.6	Ros	36x5	36x10	.....	.....	7700	170
Paige 51-18	3145	Hin HA 200	4½x5½	32.4	L	C	Own	Fin	F	Strm	V	Sim	B-Li	DD	Bos	.....	B-Li	A	4	Spic	Per	W	Timk	Flot	10.3	50.01	Ros	36x5	36x5†	Own	Fir	7000	160
Parker J20	3950	Wis VAU	4½x6	32.4	L	C	Own	PT	F	Strm	V	Pier	B-Li	DD	Eis	W	W-Gr	A	4	Bld	Tut	W	Own	Flot	8.75	43.6	Ros	36x5	40x5†	Smi	.....	6550	160
Pierce Arrow W2	4350	Own	4½x6¾	32.4	T	C	Own	Fin	F	Strm	F	Own	Own	DD	Del	Opt	Own	A	4	.....	SP	W	Own	Flot	8	49	.....	36x5	36x5†	Day	.....	8350	162
Pittsburger D	3800	Own	4½x5¼	27.2	T	C	GO	Fin	F	Strm	V	.....	B-Li	DP	Bos	.....	B-Li	A	4	Spic	C	W	Own	.....	9.5	50.82	Ros	36x5	36x10	Smi	.....	6500	162
Power C	4150	Hink HA	4½x5½	32.4	L	G	GO	PT	F	Zen	V	Hin	Full	DD	Eis	W	Full	A	4	Arv	Row	W	Wis	½Fl	10	48	Ros	36x5	40x10	StM	.....	7400	160
Rainier R-15	4400	Cont L4	4½x5½	32.4	L	G	ŁM	PT	FS	Zen	V	Pier	B-Li	DP	Eis	.....	B-Li	A	4	Spic	SP	W	Tim	Flot	.....	.....	Ros	36x5	36x5†	..	Fir	.....	170
Republic 20	3095	Cont E4	4½x5½	32.4	L	C	Own	Fin	FS	Strm	G	Phar	Full	DD	Bos	.....	Full	U	4	Spic	Math	I	Torb	D	10.25	49.25	Jac	36x5	36x10	Smi	Fir	6517	165
Gary KT	3650	Buda YTU	4½x6	32.4	L	C	Chic	Fin	F	Mas	G	McC	B-Li	DD	Eis	.....	B-Li	A	4	Spic	Math	W	Timk	Flot	10.33	50	Ros	36x5	40x5	Pru	.....	7000	162
Sanford W3½	.....	Cont E4	4½x5½	32.4	L	C	McC	Fin	F	Strm	G	Pier	B-Li	DD	Eis	.....	B-Li	A	4	Spic	Per	W	Shel	½Fl	8.7	34.8	Ros	36x5	36x5†	Hoo	Fir	6750	174
Selden Unit 70	3750	Cont E7	4½x5½	32.4	L	C	Lng	Fin	FS	Strm	G	Pier	B-Li	D	Eis	.....	B-Li	A	4	Spic	Per	W	Timk	Flot	8.75	42.35	Gem	36x5	36x10	Stn	.....	7200	168
Selden Unit 51	4350	Cont E4	4½x5½	32.4	L	C	Lng	Fin	FS	Strm	G	Pier	B-Li	D	Eis	W	B-Li	A	4	Spic	Per	W	Timk	Flot	6	32	Gem	36x6	40x8	Stn	Stn	5650	179
		Cont E4	4½x5½	32.4	L	C							B.B.	DP	Eis		B-Li	A	4	Spic	Shel	W	Timk	Flot	8.75	42.35	Ros	36x5	36x5†	Stn	Stn	6930	171
		Cont E4	4½x5½	32.4	L	C							B.B.	DP	Eis		B-Li	A	4	Spic	Shel	W	Timk	Flot	8.75	42.35	Ros	36x5	36x5†	Stn	Stn	7380	171
		Cont E4	4½x5½	32.4	L	C							B.B.	DP	Eis		B-Li	A	4	Spic	Shel	W	Timk	Flot	8.75	42.35	Ros	36x5	36x5†	Stn	Stn	.....	.....

| | | |

Trade Name and Model	Chassis Price	ENGINE DETAILS: Make and Model Number 4 Cylinder unless otherwise noted	Bore and Stroke	N. A. C. C. Horsepower	Valve Arrang't	How Cooled	Radiator (Make)	Radiator (Type)	Lubrication	Carburetor	Fuel Feed	Governor (Make)	Clutch (Make)	Clutch (Type)	Ignition System	Engine Starter	GEARSET: Make	Location	Speeds	Universal (Make)	Springs (Make)	REAR AXLE: Final Drive	Make	Type	Total Gear Reduction in High	Total Gear Reduction in Low	Steering Gear (Make)	TIRES, WHEELS, RIMS: *Pneumatic †Dual Front	Rear	Wheels (Make)	Rim Equipment	Chassis Weight (Stripped)	Wheelbase
5 Ton—Con'd		1			2	3	4	5	6	7	8	9	10	11	12	13	14	15		16	17	18	19	20			21			22	23		
Master F	5090	Buda ATU	4¼x6½	36.1	L	C	Chic	PT	FS	Mas	V	Pier	B-Li	DP	Eis	....	B-Li	A	4	Spic	Det	R	Walk	Flot	Opt	Opt	Ros	36x6	40x6†	Wal	...	9200	170
Master FL	5160	Buda ATU	4¼x6½	36.1	L	C	Chic	PT	FS	Mas	V	Pier	B-Li	DP	Eis	....	B-Li	A	4	Spic	Det	R	Walk	Flot	Opt	Opt	Ros	36x6	40x6†	Wal	...	9800	194
Menominee J	4850	Wis RAU	4¾x6	36.1	L	C	Own	Fin	FS	Strm	G	Mon	Det	DP	Eis	Opt	Cott	A	4	Spic	Tut	W	Timk	Flot	11.6	61.43	Ros	36x6	40x12	Smi	Fir	8250	160
Nelson & LeMoon G5	.....	Cont B2	4¼x6	36.1	L	C	Chic	Fin	F	Strm	G	Con	B-Li	DD	Bos	W	B-Li	A	4	Own	Tut	W	Timk	Flot	11.66	.....	Lav	36x6	40x6†	Pru	.....	8000	Op
Ogden G 5	.....	Cont B 2	4¾x6	36.1	L	C	Chic	Fin	F	Strm	G	Con	B-Li	DD	Spl	.....	B-Li	A	4	M-E	Tut	W	Walk	....	10.33	.....	Ros	36x6	40x12	Wal	.....	8600	175
*Old Reliable D	5000	Wis RAU	4¾x6	36.1	L	C	Chic	PT	F	Strm	V	Mon	Own	WD	Bos	.....	B-Li	A	4	Pet	Shel	W	Shel	½Fl	10.25	54.8	Ros	36x6	40x6	StM	.....	8400	180
Oneida E	4725	Hin 1600	4½x5½	32.4	H	C	Mod	C	F	Strm	V	Hin	Full	.....	Apo	....	Full	A	4	Pet	Math	W	Timk	Flot	11.66	70	Ros	36x6	40x12	.....	.....	9400	180
Packard EF	4500	Own	5 x5½	40	L	C	.....	Fin	F	Own	P	Own	Own	DP	Spl	Bj	Own	A	4	Spic	.....	W	Own	Flot	10.66	49	Ros	36x6	40x6	.....	.....	9050	156
Parker M20	4850	Wis RBU	5 x6	40	L	C	Own	PT	F	Strm	V	Sim	B-Li	DD	Eis	W	W-Gr	A	4	Bld	Tut	W	Own	Flot	10.25	51.1	Ros	36x6	40x6†	Smi	.....	8400	160
Pierce Arrow R10	4850	Own	4½x6¾	32.4	T	C	Own	Fin	F	Strm	F	Own	Own	DD	Del	Opt	Own	A	4	.....	SP	W	Own	Flot	10	61.2	.....	36x5	40x6†	Day	.....	9300	168
Rainier R-17	5100	Cont B-2	4¾x6	36.1	L	G	EM	Fin	F	Zen	V	Pier	B-Li	DP	..	.....	B-Li	A	4	Spi	SP	W	Timk	Flot	.....	.....	Ros	36x6	36x36†	Smi	.....	8000	170
*Rowe FW 5	4850	Wis VAU	4½x6	32.4	L	C	Fed	H	F	Zen	G	Sim	B-Li	DP	Bos	.....	B-Li	A	4	Spic	Shel	W	Shel	½Fl	8.7	40.7	Ros	36x6	40x6†	Hoo	....	8300	169
Sanford W50	.....	Cont E4	4½x5½	32.4	L	G	McC	Fin	F	Strm	G	Pier	B.B.	DP	Eis	.....	B-Li	A	4	Spic	Per	W	Shel	½Fl	10.75	52.03	Ros	36x5	40x6†	Hoo	Fir	9070	174
Schacht	4400	Buda YTU	4½x6	32.4	L	G	Own	PT	F	Sheb	G	Dup	B.B.	D	Bos	.....	Own	A	4	M-E	Nat	W	Own	Flot	14	66.5	Own	36x5	40x6†	StM	...	8200	168
*Schwarts M8	4900	Buda YTU	4½x6	32.4	L	C	Fed	H	F	Strm	G	Sim	Full	DP	Bos	.....	Full	A	4	ME	Row	W	Shel	½ Fl	10.25	61.5	Ros	36x6	40x12	Smi	Fir	8365	170
*Schwarts M	4900	BudaYTU	4½x6	32.4	L	C	Fed	H	F	Strm	G	Sim	Full	DP	Bos	.....	Full	A	4	ME	Row	W	Shel	½ Fl	10.25	61.5	Ros	36x6	40x12	Smi	Fir	8460	186
*Schwarts ML	4900	Buda YTU	4½x6	32.4	L	C	Fed	H	F	Strm	G	Sim	Full	DP	Bos	.....	Full	A	4	ME	Row	W	Shel	½ Fl	10.25	61.5	Ros	36x6	40x12	Smi	Fir	8460	186
Selden Unit 90	4950	Cont B2	4¾x6	36.1	L	C	Lng	Fin	F	Strm	G	Con	Det	D	Eis	.....	B-Li	A	4	Spic	SP	W	Timk	Flot	10.25	55	Gem	36x6	40x12	Stn	.....	9650	164
Service 102	.....	Buda	4½x6	32.4	L	C	McC	Fin	F	Strm	V	.....	.....	DP	Eis	.....	B-Li	A	3	Spic	Shel	W	Timk	Flot	.....	.....	Ros	36x6	40x6†	Stn	.....	8760	171
Signal R	4400	Cont B2	4¾x6	36.1	L	C	McC	Fin	FS	Strm	G	Con	B-Li	DD	Eis	.....	B-Li	A	4	Spic	Det	W	Timk	Flot	11.6	56.43	Ros	36x6	40x12	Smi	Gdy	9510	180
Standard 5K	4400	Cont B2	4¾x6	36.1	L	C	Lng	Fin	F	Strm	V	Con	B-Li	DD	Eis	.....	B-Li	A	4	Spic	Per	W	Timk	Flot	11.66	56.5	Gem	36x6	40x14	Day	.....	8700	164
*Sterling 5-Worm	4950	Ster EU	5 x6¼	40	L	C	Own	PT	F	Zen	V	Wau	H-S	WD	Eis	.....	Own	A	3	Spic	Math	W	Timk	Flot	8.8	39.69	Ros	36x6	40x6†	Pru	.....	9950	168
*Sterling 5-Chain	5500	Ster EU	5 x6¼	40	L	C	Own	PT	F	Zen	V	Wau	H-S	WD	Eis	.....	Own	A	6	UM	Math	C	Own	D	7.04	43	Ros	36x6	40x6†	Smi	.....	9450	174
Super Truck 100	4600	Wis	4¾x6	36.1	L	C	Chic	Fin	F	Zen	G	Sim	Full	DD	Spl	.....	Full	A	4	Spic	Shel	W	Shel	½ Fl	10.25	49.2	Ros	36x5	40x6†	Smi	.....	8500	164
Tiffin TW	4300	Cont B2	4¾x6	36.1	L	C	Own	Fin	F	Sheb	G	Con	B.B.	DP	Bos	W	Cott	A	4	Pet	Kal	W	Shel	½Fl	10.25	53.3	Ros	36x6	40x6†	Smi	.....	8550	168
Titan 5	.....	Buda YTU	4½x6	32.4	L	C	B&W	PT	F	Strm	G	Sim	B.B	D	Eis	.....	Cott	A	4	Pet	Shel	I	Cl	D	11	59	Lav	36x5	40x12	Cla	....	7900	156
Titan 6	5250	Buda YTU	4½x6	32.4	L	C	BW	ZZT	F	Strm	G	Eis	B.B.	DD	Eis	.....	Cott	A	4	Pet	Shel	I	Cl	D	11	59	Lav	36x5	40x6†	Cla	....	9100	156
*Transport 75	3485	Buda YTU	4½x6	32.5	L	C	.....	.....	F	Strm	G	Dup	B.B.	.....	Eis	.....	Cott	...	4	Hart	Det	I	Cl	.....	10.1	52.1	Jac	36x5	36x12	.....	.....	7600	170
Traylor F	4790	Buda YTU	4½x6	32.6	L	P	GO	Fin	F	Zen	G	Sim	B-Li	DD	Bos	.....	B-Li	A	4	Spic	Mer	W	Shel	½Fl	10.2	.....	Ros	36x6	40x6†	Smi	.....	9000	170
Ultimate D	5500	Buda BTU	5 x6½	40	L	C	Own	PT	F	Strm	G	Pier	B-Li	DD	Eis	Bos	B-Li	A	4	Spic	Shel	W	Shel	½Fl	8.75	46.8	Ros	36x6	40x14	Smi	.....	8600	180
*United V 5	5000	Buda YTU	4½x6	32.4	L	C	Mod	H	F	Strm	G	Sim	Full	DD	Eis	Opt	Full	A	4	Spic	Shel	I	Shel	D	12.5	75.36	Ros	36x5	40x6†	Cla	.....	9150	160
U. S., T	.....	Buda ATU	4¾x6½	36.1	L	C	Lng	Fin	F	Strm	V	Sim	B-Li	DD	Eis	Opt	B-Li	A	4	Opt	Shel	W	Shel	½Fl	10.25	54.8	Lav	36x6	40x6†	Smi	.....	9700	172
Walter S	4850	Own DU	4½x6¼	32.4	L	C	Bus	PT	F	Strm	G	Wau	B-Li	DP	Bos	W	W-Gr	A	4	Own	Stan	R	Own	Flot	10	45	Ros	36x6	40x6†	Day	.....	8200	168
Ward La France 5A	4590	.....	5 x6¼	40	L	C	Own	Fin	F	Strm	G	.....	B-Li	DP	Bos	.....	B-Li	A	4	M-E	Mer	W	Timk	Flot	8.8	47.08	Ros	36x6	40x6†	Smi	.....	9300	164
White 45	4500	Own	4¼x5¾	28.9	L	C	.....	.....	F	Own	V	Own	Own	D	...	.....	Own	U	4	Own	.....	R	Own	Flot	.....	.....	Own	36x6	40x6†	.....	.....	8100	174
Wilcox F	.....	Buda	4¾x6½	36.1	L	C	.....	PT	S	Strm	V	Dup	Own	C	Bos	.....	Own	A	4	Spic	Shel	R	Walk	½Fl	10.25	56.58	Own	36.5	40x12	Smi	.....	9000	162
Wilson H	4520	Own	4¾x6	36.1	L	G	Lng	PT	FS	Mar	V	Pier	B.B.	D	Eis	.....	Own	A	4	K-B	Per	W	Timk	Flot	10.25	49.6	Ros	36x6	36x6†	Smi	.....	7500	160
Winther 109	.....	Wis VAU	4½x6	32.4	L	G	Brm	PT	F	Mas	V	Dup	B.B.	DP	Eis	W	B-Li	A	4	Bld	Math	I	Cl	D	12	60.5	Ros	36x5	40x6†	Cla	.....	8300	162
Wisconsin E	3500	Wau DU	4½x6¼	32.4	L	C	Chic	PT	F	Strm	V	Wau	B-Li	DD	Eis	Opt	B-Li	A	3	Spic	Det	W	Timk	Flot	9.25	.....	Lav	35x5	36x10	.....	Gdy	7000	148
5½, 6 and 7 Ton																																	
Available H7	6000	Her T3	5 x6	40	L	C	Chic	Fin	FS	Strm	V	Pier	B-Li	DD	Bos	.....	B-Li	A	4	M-E	Tut	R	Sav	½Fl	14	74.90	Ros	36x6	40x14	Smi	.....	10300	190
Bartlett 70	5500	Wis RBU	5 x6	40	L	C	Chic	PT	F	Strm	V	Sim	HS	WP	Bos	.....	Cott	...	3	Hart	Shel	C	Own	D	12.25	48	Ros	36x7	40x14	Smi	.....	12000	144
Garford 150 A-7½	5200	Buda BTU	5 x6½	40	L	C	Own	Fin	F	Strm	G	Sim	.....	DD	Spl	.....	Own	J	4	Spic	Per	C	Own	D	11.44	.....	Ros	36x6	40x7†	.....	.....	10200	162
*Hall 7 Chain	.....	Cont E4	4½x5½	32.4	L	T	Own	Fin	FS	Zen	G	Dup	B-Li	DP	Bos	.....	B-Li	U	.	Opt	Det	C	.....	D	12	.....	Gem	36x5	40x6†	Smi	.....	8100	144
*Kelly-Springfield K60	4600	Own	4½x6½	32.4	T	C	Lng	Fin	F	Zen	G	Pier	B.B.	D	Eis	W	Covt	A	4	Own	Per	C	Own	D	11.82	63	Gem	36x6	40x7†	Smi	.....	8900	Op
MacDonald A	5750	Buda YTU	4½x6	32.4	L	C	Own	PT	F	Strm	G	Sim	B-Li	DD	Spl	.....	B-Li	U	4	Own	Own	I	Own	D	17.5	77	Own	40x7	Opt	Opt	.....	6000	...
Maccar G	.....	Cont B2	4¾x6	36.1	L	C	Own	Fin	f	Zen	G	Con	B-Li	DD	Eis	.....	B-Li	A	4	Spic	Mer	W	Timk	Flot	10.2	54.57	Ros	36x6	40x6†	Smi	Fir	9000	186
Mack AC6½	5750	Own AC	5 x6	40	L	C	Own	Fin	S	Sheb	G	Own	Own	DP	Spl	.....	Own	UJ	3	Spic	Mer	C	Own	D	10.50	33.70	Own	36x6	40x12	.....	.....	8672	Op
Mack AC7½	6000	Own AC	5 x6	40	L	C	Own	Fin	S	Sheb	G	Own	Own	DP	Spl	.....	Own	UJ	3	Spic	Mer	C	Own	D	11.58	37.16	Own	36x7	40x7†	.....	.....	9050	Op
*Old Reliable L	6000	Wau EU	5 x6¼	40	L	C	Chic	PT	S	Strm	G	Wau	Own	WD	Bos	.....	Own	J	4	Pet	Math	C	Own	D	10.86	54.9	Ros	36x6	40x7†	StM	.....	10240	136
Schacht 7	5200	Buda YTU	4½x6	32.4	L	G	Own	PT	F	Sheb	G	Dup	B.B.	D	Bos	.....	Own	A	10	M-E	Nat	W	Own	Flot	14	66.5	Own	36x6	40x7†	St M	.....	8500	168
*Sterling 7½-Chain	6000	Ster EU	5 x6¼	40	L	G	Own	PT	F	Zen	V	Wau	H-S	WD	Eis	.....	Own	A	6	UM	Math	C	Own	D	7.26	44	Ros	36x6	40x7†	Smi	.....	10700	174
Tiffin 6 U-W	4500	Cont B2	4¾x6	36.1	L	C	Own	Fin	F	Sheb	G	Con	B.B.	DP	Bos	W	Cott	A	4	Pet	Kal	W	Shel	½Fl	10.25	53.3	Ros	36x6	40x12	Smi	.....	9200	168
Union J.W	5800	Wis RBU	5 x6	40	L	G	GO	Fin	F	Sheb	G	Dup	Full	DD	Eis	LN	Full	A	4	UP	Math	R	Walk	.....	11.5	69.0	Ros	36x6	40x14	Smi	.....	9250	193
Walter R	5350	Own DU	4½x6¼	32.4	L	G	Bus	PT	F	Strm	G	Wau	B-Li	D	Eis	W	War	A	4	Own	.....	.....	Own	Flot	10	50	Ros	36x6	40x7†	Day	.....	8500	168
Wichita S	5000	Wau DU	4½x6¼	32.4	L	G	.....	PT	F	Strm	G	Wau	Own	C	Wag	.....	Own	A	4	Own	Det	R	Own	½Fl	14	66.3	Ros	36x6	40x6†	Smi	.....	10000	165
Winther 140	.....	Wis-RBU	5 x6	40	L	G	Brm	PT	F	Mas	V	Dup	B.B.	DP	Eis	W	B-Li	A	4	Bld	Math	I	Cl	D	12	60.5	Ros	36x6	40x7†	Cla	.....	9600	162
Gasoline Tractor-Trucks																																	
Buffalo Six 2½	3400	Her CU3	4 x5½	25.6	L	P	Own	PT	F	Zen	V	Sim	Covt	D	Bos	Bos	Covt	...	10	Spic	Shel	W	Shel	½Fl	8.75	170	Ros	Opt	Opt	Way	Gdy	6200	155
Federal Light Duty	2600	Cont C4	4¼x5¼	27.2	L	C	Own	Fin	FS	Zen	G	Phar	B.B.	DP	Eis	.....	Own	A	4	Spic	Math	W	Timk	Flot	9.2	40.7	Gem	36x4	36x7	.....	Fir	4700	120
Federal Heavy Duty	3350	Cont E4	4½x5½	32.4	L	C	Own	Fin	FS	Zen	G	Phar	B.B.	DP	Eis	.....	Own	A	4	Spic	Math	W	Timk	Flot	12	59.8	Gem	36x5	36x5†	.....	Fir	6800	114
Fulton D	2550	H Sp 7000	3½x5	19.6	L	T	GO	H	FS	Cart	G	.....	Covt	DP	Ber	.....	Covt	..	3	UP	.....	I	Russ	D	10.2	.....	Lav	36x4	36x6	Hoo	.....	3300	110
Koehler MT	3275	Her	4 x5⅛	25.6	L	G	Own	PT	F	Zen	G	Sim	B-Li	DD	Spl	.....	B-Li	A	4	Spic	Math	W	Timk	Flot	9.25	37	Lav	36x4	36x7	Way	.....	5000	129
Lombard 140H.P	.....	Spec 6	5¾x7	72.7	L	C	Spec	H	F	Strm	P	.....	.....	D	...	.....	Spec	A	...	.....	.....	W	.....	.....	.....	.....	Spe	.....	.....	.....	.....	18000	...
Lombard 50 H.P	.....	Spec 4	5 x6¼	40	L	C	Spec	H	F	Strm	P	.....	.....	D	...	.....	Spic	A	...	.....	.....	W	.....	.....	.....	.....	Spe	.....	.....	.....	.....	8000	...
Mack AB 5-Ton	3400	Own AB	4 x5	25.6	L	C	Own	C	S	Sheb	G	Own	Own	DD	Spl	.....	Own	U	4	Spic	Mer	C	Own	D	10.5	42.27	Own	36x4	36x4†	.....	.....	4940	120
Mack AC 7-Ton	4950	Own AC	5 x6	40	L	C	Own	Fin	S	Sheb	G	Own	Own	DP	Spl	.....	Own	UJ	4	Spic	Mer	C	Own	D	9.69	62.20	Own	36x5	40x5†	.....	.....	7670	120
Mack AC 10-Ton	5500	Own AC	5 x6	40	L	C	Own	Fin	S	Sheb	G	Own	Own	DP	Spl	.....	Own	UJ	4	Spic	Mer	C	Own	D	10.5	67.38	Own	36x6	40x6†	.....	.....	8250	120
Mack AC 13-Ton	5750	Own AC	5 x6	40	L	C	Own	Fin	S	Sheb	G	Own	Own	DP	Spl	.....	Own	UJ	4	Spic	Mer	C	Own	D	11.58	74.29	Own	36x6	40x12	.....	.....	8272	120
Mack AC 15-Ton	6000	Own AC	5 x6	40	L	C	Own	Fin	S	Sheb	G	Own	Own	DP	Spl	.....	Own	UJ	4	Spic	Mer	C	Own	D	12.92	82.92	Own	36x7	40x7†	.....	.....	8650	120
MasterDDT	3390	Buda HU	4¼x5½	28.9	L	C	Chic	PT	FS	Mas	V	McC	Full	DP	Eis	W	War	A	4	Own	.....	R	Walk	Flot	Opt	Opt	Ros	34x4	36x7	Wai	.....	4500	130
Walter 8T	4850	Own DU	4¼x6¼	32.4	L	C	Bus	PT	F	Strm	G	Wau	B-Li	D	Eis	.....	Own	A	4	Own	Flot	W	Timk	Flot	10	50	Ros	36x6	40x6†	Day	.....	7900	126
Watson	4050	Cont E4	4½x5½	32.4	L	P	Jam	C	FS	Strm	G	Pier	B-Li	DP	Sim	.....	B-Li	U	4	Spic	Shel	W	Timk	Flot	8.75	42.85	Gem	34x4	36x5†	M&C	.....	6500	80

ELECTRIC COMMERCIAL CARS

E. C. M. Name and Model Number	Carrying Capacity	Chassis Weight	Chassis Price	Maximum Speed	Battery	Mileage Per Charge	Motor	Controller	Speeds Forward	Drive	Rear Axle	Springs	Front Tires	Rear Tires	Steering Gear	Wheelbase	Per Cent of Weight on Rear Wheels
Atlantic 1C	2000	2770	.....	12	Opt	.....	G-E	G-E	4	C	Timk	S-El	34x4	36x4	Ross	193	65
Atlantic 2C	4000	3590	.....	11	Opt	.....	G-E	G-E	4	C	Timk	S-El	34x4	36x3†	Ross	115	65
Atlantic 3C	7000	5220	.....	10	Opt	.....	G-E	G-E	5	C	Timk	.....	36x5	40x5†	Ross	135	65
Atlantic 5C	10000	6230	.....	9	Opt	.....	G-E	G-E	5	C	Timk	S-El	36x6	40x5†	Ross	144	65
Atlantic 6C	13000	6940	.....	8	Opt	.....	G-E	G-E	5	C	Timk	S-El	36x6	40x6	Ross	156	65
C-T D-1	1000	2200	1585	14	Opt	55	G-E	Own	4	C-T	Flot	Shel	36x3	36x3½	W	100	69
C-T B-1.5	1500	2300	1985	14	Opt	60	G-E	Own	4	C-T	Flot	Shel	36x3	36x4	W	91½	65
C-T D-1.5	1500	2300	1985	14	Opt	60	G-E	Own	4	C-T	Flot	Shel	36x3	36x4	W	116	71
C-T B-2	2000	2400	2150	14	Opt	50	G-E	Own	4	C-T	Flot	Shel	36x3½	36x5	W	101	66
C-T D-2	2000	2400	2150	14	Opt	50	G-E	Own	4	C-T	Flot	Shel	36x3½	36x5	W	124	70
C-T B-4	4000	4000	2575	12	Opt	50	G-E	Own	4	C-T	Flot	Shel	36x4	36x4†	W	116	68
C-T C-6	6000	4200	2575	8	Opt	35	G-E	Own	4	I	Dead	Shel	36x4	36x4†	W	116	70
C-T C-7	7000	5000	3550	10	Opt	45	G-E	Own	4	I	Dead	Shel	36x5	36x5†	W	126	65
C-T A-7	7000	5800	3850	11	Opt	45	G-E	Own	4	I	Dead	Shel	36x6	36x4†	W	122	60
C-T A-10	10000	6500	3960	10	Opt	45	G-E	Own	4	I	Dead	Shel	36x7	36x5†	W	132	59
Kelland A	1000	1850	.....	15	Opt	50	G-E	G-E	4	R	Flot	Mer	34x3	34x3	Ross	102	60
*Kelland B	1500	1950	.....	15	Opt	50	G-E	G-E	4	R	Flot	Mer	34x3	34x3½	Ross	102	60
Kelland C	2000	2150	.....	15	Opt	50	G-E	G-E	4	R	Flot	Mer	34x3½	34x4	Ross	102	60
Lansden BG ¾	.....	1400	1600	15	Opt	50	G-E	G-E	4	R	Flot	SP	32x4½	32x4½	Lav	90	50
Lansden MC 1	.....	2900	1850	12	Opt	50	G-E	G-E	4	C	D	SP	36x3	36x3½	KH	108	60
Lansden MD 2	.....	4400	2250	11	Opt	50	G-E	G-E	4	C	D	SP	36x4	36x3†	KH	120	60
Lansden ME 3½	.....	5700	2950	10	Opt	45	G-E	G-E	4	C	D	SP	36x5	36x4†	KH	133	60
Lansden MF 5	.....	7500	3350	9	Opt	40	G-E	G-E	4	C	D	SP	36x6	36x5†	KH	146	60
Lansden MG 6	.....	8900	.....	7	Opt	35	G-E	G-E	4	C	D	SP	36x7	36x6†	KH	156	60
Walker Model 22	2000	3700	.....	14	Opt	60	West	West	5	O	Own	Math	34x3½	36x4	Ross	101	66
Walker Model 42	4000	2500	.....	13	Opt	60	West	West	5	O	Own	Math	36x4	36x6	Ross	114	66
*Walker M 2	1250	2300	.....	15	Opt	60	West	West	5	O	Own	Math	34x3	36x3½	Ross	94	66
*Walker N	10000	6300	.....	10	Opt	50	West	West	5	O	Own	Math	36x6	38x6†	Ross	141	66
*Walker P	7000	5300	.....	11	Opt	50	West	West	5	O	Own	Math	36x5	38x5†	Ross	131	66
*Walter EN	3600	4400	2900	15	Opt	50	G-E	G-E	4	O	Dead	.....	36x4	36x7	Gem	114	60
*Walter EL	6600	4550	3600	13½	Opt	50	G-E	G-E	4	O	Dead	.....	36x5	36x4	Gem	130	60
*Walter ES	9600	7200	4350	12	Opt	50	G-E	G-E	4	O	Dead	.....	36x6	40x6	Ros	150	60
Ward WS 2	.....	1650	.....	13	Opt	45	G-E	Own	4	W	Shel	Shel	32x3	32x3½	Own	88	60
Ward WA	.....	2860	.....	12	Opt	45	G-E	Own	4	W	Shel	Shel	32x3½	34x4	Own	90	60
Ward WA 2	.....	2470	.....	12	Opt	45	G-E	Own	4	W	Shel	Shel	32x3½	34x4	Own	90	60
Ward WB	.....	3850	.....	10.5	Opt	40	G-E	G-E	4	W	Shel	Shel	34x4	36x5	Own	102	60
Ward WB 2	.....	3350	.....	10.5	Opt	40	G-E	G-E	4	W	Shel	Shel	34x4	36x5	Own	102	60
Ward WD	.....	4875	.....	9	Opt	35	G-E	G-E	4	W	Shel	Shel	36x5	36x7	Own	114	60
Ward WD 2	.....	4350	.....	9	Opt	35	G-E	G-E	4	W	Shel	Shel	36x5	36x7	Own	114	60
*Ward WF	.....	7200	.....	8	Opt	30	G-E	G-E	5	W	Shel	Shel	36x6	36x10	Own	132	70
*Ward WF 2	.....	6450	.....	8	Opt	30	G-E	G-E	5	W	Shel	Shel	36x6	36x10	Own	132	70
Ward WH	.....	9400	.....	7	Opt	26	G-E	G-E	5	W	Shel	Shel	36x7	40x12	Own	144	70
Ward WH 2	.....	8200	.....	7	Opt	26	G-E	G-E	5	W	Shel	Shel	36x7	40x12	Own	144	70

Manufacturers and Models Included in Specifications on Preceding Pages

Acason—¾, 1, 1½, 2½, 3½, 5—Acason Motor Truck Co., Wyandotte, Mich.
Ace—1½, 2½—American Motor Truck Co., Newark, Ohio.
Acme—1, 1½, 2 3, 4½, 6¼—Acme Motor Truck Co., Cadillac Mich.
Ajax—1½—Ajax Motors Corp., Boston, Mass.
American—2½, 4—American Motor Truck & Tractor Co., Portland, Conn.
Apex—1, 1½, 2½, 3½—Hamilton Motor Co., Grand Haven, Mich.
Armleder—1, 1½, 2½, 3½—O. Armleder Co., Cincinnati, Ohio.
Atco—1½, 2½—American Truck & Trailer Corp., Kankakee, Ill.
Atlantic—1, 2, 3, 5, 6—Atlantic Electric Vehicle Co., Newark, N. J.
Atlas—1—Atlas Truck Corp., York, Pa.
Atterbury—1½, 2½, 3½, 5—Atterbury Motor Car Co., Buffalo, N. Y.
Autocar—1½, 2, 5—Autocar Co., Ardmore, Pa.
Available—1½, 2, 2½, 3½, 5, 7—Available Truck Co., Chicago, Ill.
Avery—1—Avery Company, Peoria, Ill.
Bartlett—7—Bartlett Truck Co., Chicago, Ill.
Bell—1, 1½, 2½—Iowa Motor Truck Co., Ottumwa, Ia.
Bessemer—1, 1½, 2½, 4—Bessemer Motor Truck Co., Grove City, Pa.
Birch—1—Birch Motor Cars, Chicago, Ill.
Bridgeport—1½, 2½, 3½—Bridgeport Motor Truck Co., Bridgeport, Conn.
Brinton—1½, 2½—Brinton Motor Truck Co., Philadelphia, Pa.
Brockway—¾, 1½ 2½, 3½, 5—Brockway Motor Truck Co., Cortland, N. Y.
Buffalo—1½, 2½T T—Buffalo Truck & Tractor Corp., Clarence, N. .Y.
C. T.—1, 1½, 2, 3½, 5—Commercial Truck Co., Philadelphia, Pa.
Capitol—1½, 2½, 3½—Capitol Motors Corp., Fall River, Mass.
Casco—1—Casco Motors, Inc., Portland, Maine.
Case—2—J. I. Case Plow Works Co., Racine, Wis.
Chevrolet—¾, 1—Chevrolet Motor Co. of Mich., Flint, Mich.
Chicago—1½, 2½, 3½, 5—Chicago Motor Truck, Inc., Chicago, Ill.
Climber—1½—Climber Motor Corp., Little Rock, Ark.
Clydesdale—¾, 1, 1½, 2½, 3½, 5—Clydesdale Motor Truck Co., Clyde, Ohio.
Collier—1, 1½, 2, 2½—Collier Motor Truck Co., Bellevue, Ohio.
Commerce—1¼, 1½, 2, 2½—Commerce Motor Truck Co., Detroit, Mich.
Concord—1½, 2, 2½, 3—Abbott-Downing Truck & Body Co., Concord, N. H.
Corbitt—1, 1½, 2, 2½, 3, 4, 5—Corbitt Motor Truck Co., Henderson, N. C.
Cyclone—1½—The Cyclone Motor Corp., Greenville, S. C.
Dart—1½, 2½, 3½—Dart Truck & Tractor Corp., Waterloo, Ia.
Day-Elder—1, 1½, 2, 2½, 3½, 5—Day-Elder Motors Corp., Newark, N. J.
Dearborn—1, 1½, 2—Dearborn Truck Co., Chicago, Ill.
Defiance—1, 1½, 2—Defiance Motor Truck Co., Defiance, Ohio.
Denby—1, 1½, 2, 3, 4, 5—Denby Motor Truck Co., Detroit, Mich.
Dependable—1, 1½, 2, 2½, 3½—Dependable Truck & Tractor Co., East St. Louis, Ill.
Diamond T—1¼, 1½, 2, 3½, 5—Diamond T Motor Car Co., Chicago, Ill.
Diehl—1, 1½—Diehl Motor Truck Works, Philadelphia, Pa.
Dixon—Dixon Motor Truck Co., Altoona, Pa.
Dodge—½—Dodge Bros., Detroit, Mich.
D-Olt—1½, 2½, 5—D-Olt Motor Truck Co., Inc., Long Island City, N. Y.
Dorris—2, 3½—Dorris Motor Car Co. St. Louis, Mo.
Dort—½—Dort Motor Car Co., Flint, Mich.
Double Drive—4—Double Drive Truck Co., Chicago, Ill.
Douglas—1½, 2, 3—Douglas Motors Corp., Omaha, Neb.
Drake—2—Drake Motor & Tire Mfg. Corp., Knoxville, Tenn.
Duplex—2, 3½—Duplex Truck Co., Lansing, Mich.
Duty—2—Duty Motor Co., Elgin, Ill.
Eagle—2—Eagle Motor Truck Corp., St. Louis, Mo.
Earl—1—Earl Motors, Inc., Jackson, Mich.
Erie—1½, 2½—Erie Motor Truck Mfg. Co., Erie, Pa.
Eugol-1—Eugol Motor Truck Co., Kenosha Wis.
F. W. D.—3—Four-Wheel Drive Auto Co., Clintonville, Wis.
Facto—2½—Facto Motor Trucks, Springfield, Mass.
Fageol—2, 3, 4, 5—Fageol Motors Co., Oakland, Cal.
Fargo—2—Fargo Motor Truck Co., Chicago, Ill.
Federal—1, 1½, 2, 3½, 5, T.T.—Federal Motor Truck Co., Detroit, Mich.
Ford—1—Ford Motor Co., Highland Park, Mich.
Forschler—1, 1½, 2, 3—Forschler Motor Truck Mfg. Co., New Orleans, La.
Front Drive—1½—Double Drive Truck Co., Chicago, Ill.
Fulton—1, 2, T.T.—Fulton Motors Corp., Farmingdale, N. Y.
G. M. C.—1, 2, 3½, 5—General Motors Truck Co., Pontiac, Mich.
G. W. W.—1½—Wilson Truck Mfg. Co., Henderson, Ia.
Garford—¾, 1¼, 2, 3½ 5, 7½—Garford Motor Truck Co., Lima, O.
Gary—1, 2, 2½, 3½, 5—Gary Motor Corp., Gary, Ind.
Gersix—1½, 2½, 3—Gersix Mfg. Co., Seattle, Wash.
Giant—1½, 2½, 3½, 5—Giant Truck Corp., Chicago Heights, Ill.
Graham—1, 1½—Graham Brothers, Evansville, Ind.
Gramm-Bernstein—1, 1½, 2, 3, 3½, 4, 5—Gramm-Bernstein Motor Truck Co., Lima, Ohio.
Hal-Fur—2, 3½—Hal-Fur Motor Truck Co., Cleveland, Ohio.
Hall—2½, 3½, 5, 7—Lewis-Hall Motors Corp., Detroit, Mich.
Harvey—2, 2½, 3½—Harvey Motor Truck Co., Harvey, Ill.
Hendrickson—2½, 3½, 5—Hendrickson Motor Truck Co., Chicago, Ill.
Higrade—1, 1½—Higrade Motors Co., Harbor Springs, Mich.
H. R. L.—¾, 1½, 2½—H. R. L. Motor Co., Seattle, Wash.
Hurlburt—1½, 2½, 3½, 5—Harrisburg Mfg. & Boiler Co., Harrisburg, Pa.
Huron—1½, 2½—Huron Truck Co., Bad Axe, Mich.
Independent—1½, 2½, 3½—Independent Motor Co., Youngstown, Ohio.
Independent—1, 1½, 2½—Independent Motor Truck Co., Inc., Davenport, Ia.
Indiana—1½, 2, 2½, 3½, 5—Indiana Truck Corp., Marion, Ind.
International—1, 1½, 2, 3, 5—International Harvester Co., Chicago, Ill.
Jackson—3½—Jackson Motors Corp., Jackson, Mich.

Kalamazoo—1½, 2½, 3½—Kalamazoo Motor Corp., Kalamazoo, Mich.
Kearns—¾, 1½—Kearns-Dughie Motors Co., Danville, Pa.
Kelland—Kelland Motor Car Co., Newark, N. J.
Kelly-Springfield—1½, 2½, 3½, 5, 6—Kelly-Springfield Motor Truck Co., Springfield, O.
Keystone—2—Keystone Motor Truck Corp., Philadelphia, Pa.
Kimball—2, 2½, 3, 4, 5—Kimball Motor Truck Co., Los Angeles, Cal.
Kissel—1, 1½, 2½, 4, 5—Kissel Motor Car Co., Hartford, Wis.
Kleiber—1, 1½, 2, 2½, 3½, 5—Kleiber & Co., Inc., San Francisco, Cal.
Koehler—1½, 2½, 3½, T.T.—H. J. Koehler Motors Corp., Bloomfield, N. J.
Lange—2, 2½—Lange Motor Truck Co., Pittsburgh, Pa.
Lansden—¾, 1, 2, 3½, 5, 6—Lansden Company, Danbury, Conn.
Larrabee-Deyo—1½, 2½, 3½, 5—Larrabee-Deyo Motor Truck Co., Inc., Binghamton, N. Y.
Lombard—T.T.—Lombard Auto Tractor Truck Corp., New York, N. Y.
Luedinghaus—1, 1½, 2—Luedinghaus-Espenschied Wagon Co., St. Louis, Mo.
Maccar—2½, 3, 4, 5, 6—Maccar Truck Co., Scranton, Pa.
MacDonald—7—MacDonald Truck & Tractor Co., San Francisco, Cal.
Mack—1½, 2, 2½, 3½, 5, 6½, 7½, T.T.—International Motor Co., New York, N. Y.
Master—1½, 2½, 3½, 5, T.T.—Master Trucks, Inc., Chicago, Ill.
Maxwell—1½—Maxwell Motor Co., Inc., Detroit, Mich.
Menominee—1, 1½, 2, 3½, 5—Menominee Motor Truck Co., Menominee, Mich.
Moline—1½—Moline Plow Co., Moline, Ill.
Moreland—1, 1½, 2½, 4, 5—Moreland Motor Truck Co., Los Angeles, Cal.
Napoleon—¾, 1, 1½—Napoleon Motors Co., Traverse City, Mich.
Nash—1, 2—Nash Motors Co., Kenosha, Wis.
Nelson-LeMoon—1½, 2½, 3½, 5—Nelson & LeMoon, Chicago, Ill.
Netco—2, 2½—New England Truck Co., Fitchburg, Mass.
Niles—2—Niles Motor Truck Co., Pittsburgh, Pa.
Noble—1½, 2, 2½, 3½—Noble Motor Truck Co., Kendallville, Ind.
Northway—2, 3½—Northway Motors Co., Natick, Mass.
Norwalk—1, 1½—Norwalk Motor Car Co., Martinburg, W. Va.
O. K.—1½, 2½, 3½—Oklahoma Auto Mfg. Co., North Muskogee, Okla.
Ogden—¾, 1½, 2½, 3½, 5—Ogden Motor Truck Co., Chicago, Ill.
Old Reliable—1½, 2½, 3½, 5, 6—Old Reliable Motor Truck Co., Chicago, Ill.
Oldsmobile—1—Olds Motor Works, Lansing, Mich.
Olympic—2½—Olympic Motor Truck Co., Tacoma, Wash.
Oneida—2, 2½, 3½, 5—Oneida Motor Truck Co., Green Bay, Wis.
Oshkosh—2, 2½—Oshkosh Motor Truck Mfg. Co., Oshkosh, Wis.
Packard—2, 3, 5—Packard Motor Car Co., Detroit, Mich.
Paige—1½, 2½, 3½—Paige-Detroit Motor Car Co., Detroit, Mich.
Parker—1, 2½, 3½, 5—Parker Motor Truck Co., Milwaukee, Wis.
Patriot—1, 2, 3—Patriot Mfg. Co., Lincoln, Neb.
Penn—2—Penn Motors Corp., 1714 N. Broad St., Philadelphia, Pa.
Pierce-Arrow—2, 3½, 5—Pierce-Arrow Motor Car Co., Buffalo, N. Y.
Pioneer—1—Pioneer Truck Co., Chicago, Ill.
Pittsburger—2½, 3½—Pittsburgh Truck Mfg. Co., Pittsburgh, Pa.
Power—1½, 3½—Power Truck & Tractor Co., St. Louis, Mo.
Premocar—1½—Preston Motors Corp., Birmingham, Ala.
Ranier—¾, 1, 1½, 2, 2½, 3½, 5—Ranier Motor Corp., New York, N. Y.
Ranger—2—Southern Motor Mfg. Ass'n, Ltd., Houston, Tex.
Reliance—1½, 2½—Reliance Motor Truck Co., Appleton, Wis.
Reo—1¼—Reo Motor Car Co., Lansing, Mich.
Republic—¾, 1, 1½, 2½, 3½—Republic Motor Truck Co., Inc., Alma, Mich.
Rowe—1½, 2, 3, 4, 5—Rowe Motor Mfg. Co., Lancaster, Pa.
Ruggles—1½, 2—Ruggles Motor Truck Co., Saginaw, Mich.
Rumely—1½—Advance-Rumely Thresher Co., Inc., La Porte, Ind.
Samson—¾, 1¼—Samson Tractor Co., Janesville, Wis.
Sanford—2½, 3½, 5—Sanford Motor Truck Co., Syracuse, N. Y.
Schacht—2, 3, 4, 5, 7—G. A. Schacht Motor Truck Co., Cincinnati, O.
Schwartz—1, 2, 3, 5—Schwartz Motor Truck Co., Reading, Pa.
Selden—1½, 2½, 3½, 5—Selden Truck Corp., Rochester, N. Y.
Service—¾, 1¼, 1½, 2, 2½, 3, 3½, 6—Service Motor Truck Co., Wabash, Ind.
Signal—1, 1½, 2½, 3½, 5—Signal Truck Corp., Detroit, Mich.
Southern—1, 1½, 2—Southern Truck & Car Corp., Greenboro, N. C.
Standard—1½, 2½, 3½, 5—Standard Motor Truck Co., Detroit, Mich.
Sterling—1½, 2, 2½, 3½, 5, 7½—Sterling Motor Truck Co., Milwaukee, Wis.
Stewart—¾, 1, 1½, 2, 2½, 3½—Stewart Motor Corp., Buffalo, N. Y.
Stoughton—¾, 1, 1½, 2, 3—Stoughton Wagon Co., Stoughton, Wis.
Super Truck—2½, 3½, 5—O'Connell Motor Truck Co., Waukegan, Ill.
Superior—1, 2—Superior Motor Truck Co., Atlanta, Ga.
Tiffin—1½, 2½, 3½, 5, 6—Tiffin Wagon Co., Tiffin, Ohio.
Titan—2, 3½, 5, 6—Titan Truck Co., Milwaukee, Wis.
Thomart Speed—1¼—Thomart Motor Co., Kent, Ohio.
Tower—1½, 2½, 3½—Tower Motor Truck Co., Greenville, Mich.
Traffic—1½, 2, 3—Traffic Motor Truck Corp., St. Louis, Mo.
Transport—1, 1½, 2, 3, 3½, 5—Transport Truck Co., Mt. Pleasant, Mich.
Traylor—1½, 2, 3, 5—Traylor Eng. & Mfg. Co., Cornwells, Pa.
Triangle—¾, 1½, 2, 2½—Triangle Motor Truck Co., St. Johns, Mich.
Triumph—1½, 2, 2½—Triumph Truck & Tractor Co., Kansas City, Mo.
Twin City—2, 3½—Twin City Company, Minneapolis, Minn.
Ultimate—1½, 2, 2½, 3, 5—Vreeland Motor Co., Inc., Newark, N. J.
Union—2½, 4, 6—Union Motor Truck Co., Bay City, Mich.
United—1½, 2½, 3½, 5—United Motors Co., Grand Rapids, Mich.
Ursus—1, 1½, 2½, 3½—Ursus Motor Co., Inc., Chicago, Ill.
U. S.—1¼, 1½, 3, 4, 5—United States Motor Truck Co., Cincinnati, Ohio.
Velie—1½—Velie Motors Corp., Moline, Ill.
Vim—½, 1, 2, 3—Vim Motor Truck Co., Philadelphia, Pa.
Vulcan—2½—Vulcan Mfg. Co., Seattle, Wash.
Walker—½, 1, 2, 3½, 5—Walker Vehicle Co., Chicago, Ill.
Walker-Johnson—2, 2½—Walker-Johnson Truck Co., Woburn, Mass.
Walter—2, 2½, 3½, 5, 7—T. T. Walter Truck Co., New York, N. Y.
Ward—¼, 1, 2, 3½, 5—Ward Motor Vehicle Co., Mt. Vernon, N. Y.
Ward La France—2½, 3½, 5—Ward La France Truck Co., Inc., Elmira, N. Y.
Watson—¾, 3½, T.T.—Watson Wagon Co., Canastota, N. Y.
White—¾, 2, 3½, 5—White Co., Cleveland, Ohio.
White Hickory—1, 1½, 2½—White Hickory Motor Corp., Atlanta, Ga.
Wichita—1, 2, 3, 3½, 5½—Wichita Falls Motors Co., Wichita Falls, Tex.
Wilcox—1, 1½, 2½, 3½, 5—Wilcox Trux, Inc., Minneapolis, Minn.
Wilson—1½, 2½, 3½, 5—J. C. Wilson Co., Detroit, Mich.
Winther—1, 1½, 2, 2½, 3½, 5, 7—Winther Moter Truck Co., Kenosha, Wis.
Wisconsin (Loganville)—2, 2½—Wisconsin Truck Co., Loganville, Wis.
Wisconsin (Sauk City)—1, 1½, 2½, 3½—Wisconsin Farm Tractor Co., Sauk City, Wis.
Witt-Will—1½, 2—Witt-Will Co., Inc., Washington, D. C.
Wolverine—1, 1½, 2, 2½, 3½—American Commercial Car Co., Detroit, Mich.
Yellow Cab—¾, 1¼—Yellow Cab Mfg. Co., Chicago, Ill.

Electric Bell on Truck Calls Customers

Housewives of Columbus, Ohio, need no longer listen for the huckster's call. In the words of the comic strip, "Them days is gone forever." C. H. White, a Columbus fruit and vegetable merchant, has modernized the method of vending these commodities.

Mr. White recently purchased a Ruggles one-ton truck for delivering fruit and vegetables to his customers. He had the truck fitted with an electric bell as special equipment and now, as he drives along, instead of shouting to attract his customers' attention, he merely pushes a button that starts the bell ringing.

Mr. White has laid out a schedule with train-like accuracy so that housewives know just about what time to expect him. They can hear the electric bell farther off than they could hear the voice, so are ready when he arrives. Delay is thus eliminated and more territory covered.

The special body used on this truck is attractive and remarkably efficient. It is five feet high with glass windows on all sides, giving the effect of a show window from which housewives can inspect the fruits and vegetable. The latter are arranged on trays in two decks, making them easy of access. The truck body is painted marble white forming a pleasing contrast with the vari-colored fruits and vegetables.

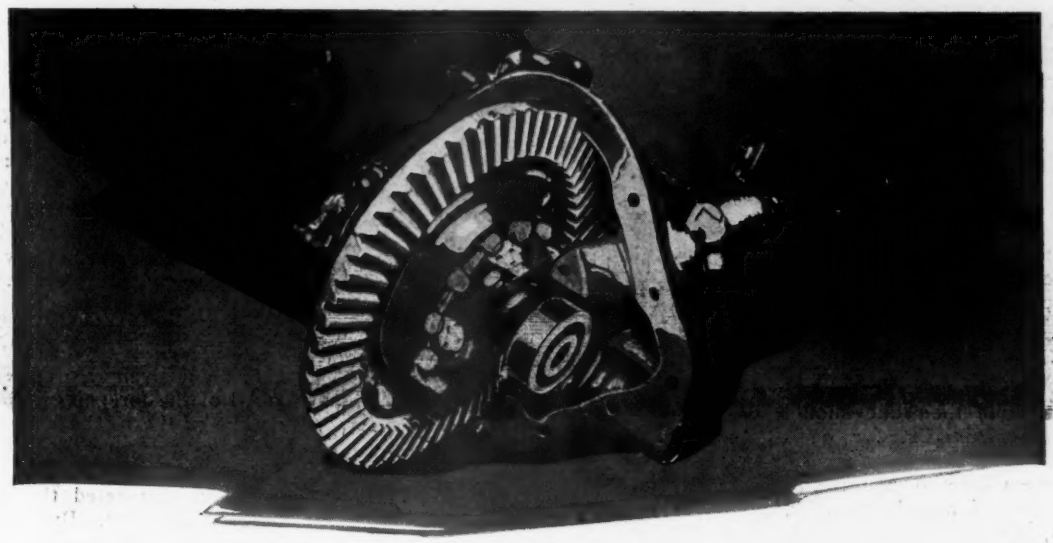
This traveling store saves housewives from making trips to the grocery store or the market. They are willing to pay the higher price for provisions delivered in this manner as it saves them making special trips, and they also know the fruits and vegetables are fresh.

1,500 Motor Express Lines in United States

There are 984 motor express lines in the United States which have been listed at the offices of the N. A. C. C. The total number of motor express lines in the United States is estimated at 1,500. The tendency is toward consolidation, with fewer lines doing a larger business.

One-Ton Ruggles Equipped With a Special Body for an Itinerate Produce Merchant

SKF



The Deep Groove Ball Bearing

—A Reversible Thrust Carrier for the Differential

WHEN deep groove ball bearings are used at the differential, there is no necessity for dismantling the assembly to take up bearing wear. To require adjustment in a bearing is conclusive evidence: first of friction and wear; second, that the bearing will not function correctly unless adjustment is made by skilled mechanics.

The accuracy of bearing settings, too, is essential for the efficiency of the drive as well as the proper meshing of gear and noiseless operation. Deep groove ball bearings maintain the shafts in proper position in transverse directions without the use of thrust bearings.

The advantages of deep groove ball bearings are inherent in the bearing design. Because of the uniform cross section of both races a single bearing can carry heavy thrust loads in either direction, which means that the load can be applied to either side of the bearing and the bearing is therefore fool-proof in assembly and reversible in practice.

Concerns which keep comparative records of bearing performance, inevitably standardize on deep groove bearings.

THE HESS-BRIGHT MANUFACTURING COMPANY

747 Supervised by SKF INDUSTRIES, INC., 165 Broadway, New York City

Races displaced to show DEEP-GROOVE bearing carrying maximum end thrust in a forward direction.

Races displaced to show THE SAME bearing carrying maximum thrust in reverse direction.

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

Do You KNOW the Market for Your Truck?

(*Continued from page 15*)

and "U" sold 32 per cent, then the situation would be entirely different. In this case it is very clear that competition is very keen and that your ("U," even though you rank third as you did before) chances of increasing your volume of sales will be very much more difficult of attainment.

After making a comparison with competitors as outlined in the above paragraphs then one is in a position to know all of the outstanding features of his company, truck, and the like. These features are the facts which should aid very materially in increasing sales.

Estimating the Actual Market

Once all of the above indicated research has been done then one should determine the actual market for one's truck. The data collected under the other heads will indicate where to continue to compete, what kind of models to offer, and the type of buyers to specialize on. The tabulation of the number, kind and location of the actual and possible buyers in your territory can be gathered from the various local directories, telephone books, trade directories, state license bureaus, etc. All data collected from these sources should be classified and geographically drawn up and filed so that a real picture of the local conditions and market may be gleamed at a glance at these records and charts. For example, suppose one is examining the outlets in a given state. In this case you will want to know the geographic concentration of all manufacturing and commercial establishments, and the number and classification of each kind. This should be followed by intelligence on how many are actual and prospective buyers of motor trucks. And to be of helpful service this sort of data should be reduced from the state as a whole into counties and cities in order that sales quotas may be arrived at; and that the right kind of salesman may be placed in charge of the field where he can get the greatest possible results at the least amount of effort. It is only by having information under such thorough command that the research director can enlighten the sales manager where to best lend his efforts.

Your sales quota having been determined as a result of this analysis of the market, it then becomes one's duty to arrive at an estimated cost of advertising, selling, producing, etc., you are willing to spend in each locality to reach the quota in that district. And this resolves itself into a budget, which is the very best possible thing to do. With a definite distribution of a budget amongst the various activities, it becomes very easy for one at the end of each month to compare the actual with the estimated cost of doing business.

Planning Distribution

Proceeding further, a distribution plan becomes the next subject for analysis and decision. And this may be divided into three classes, namely:

1. Channels of distribution;
2. Sales methods; and,
3. Human equation.

The first concerns itself with a plan of how to reach the prospect, aside from advertising methods. If a manufacturer, the question resolves itself into where there should be local and territorial dealers; or where there should be local and territorial branches, or both. And if a dealer or branch agency, the question becomes one of distribution of representatives and salesmen.

With selling methods one should ascertain the policy toward salesmen as to:

1. Functions;
2. Training;
3. Sales talks;
4. Salesmen's helps; and,
5. Compensation.

As to the various forms of advertising, such as magazines, newspapers, booklets, circulars, letters, posters, electric signs, and billboards, there should be a definite idea for each as to:

1. Purpose;
2. Mediums to be used;
3. Construction; and,
   (a) Reading matter,
   (b) Illustration;
4. Record of distribution and results.

Also, rules should be formulated on how, when and the kind of service is to be rendered to buyers of trucks; and how the prospect's business is to be first analyzed before selling him a truck, so that he may be instructed on how to get the very most and best results out of his truck.

And last, one of the most important elements in the matter of distribution is the human equation. This must be carefully analyzed by the research director so that the dealer or manufacturer will understand, as far as it is humanly possible, all such factors as racial habits of people in the territory, their habits of buying, paying and doing business, and the special characteristics of each class of business man. There is no denying the fact that certain types of races show signs of conservatism, and others are more aggressive, etc.; and that business men of any given kind have tendencies to think along certain lines in different ways. All of these factors must be carefully weighed and analyzed in order that the best adapted salesman may be directed to care for a given type of prospect.

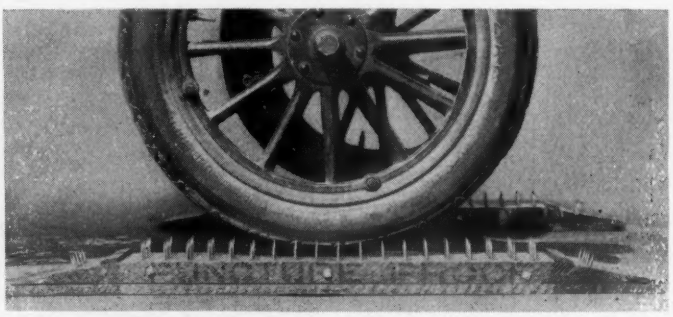
All of the foregoing is but a very brief outline of the methods of making a market analysis on trucks. If this outline is diligently followed, and the facts are properly interpreted the reward will be exceedingly great. But should the manufacturer or dealer merely collect the data and fail to interpret the facts, his efforts will have been badly spent. Equally as bad for him will be the placing of a man in charge of this research who has not the ability to know how to get the data, where to find it, what it means, or who does not know how to properly classify and interpret the facts. Market research methods are like a kit of tools. When placed in proper hands the results are gratifying, but when placed in the hands of an incompetent, both the results and the tools amount to nothing.

A Few More Truck Reductions

Reductions in truck prices were smaller in number than any time in the past few months. Companies announcing price changes were: The Gary Motor Corp., Gary, Ind.; Earl Motors, Inc., Jackson, Mich.; Stewart Motor Corp., Buffalo, N. Y.; Bridgeport Motor Truck Corp., Bridgeport, Conn.; Rowe Motor Mfg. Co., Lancaster, Pa.; Wilson Truck Mfg. Co., Minneapolis, Minn., and the Brinton Motor Truck Co., Philadelphia, Pa.

Protest Made Against Horn Freight Rates

The Klaxon Company, Newark, N. J., has filed a complaint against the Alabama Great Western Railroad and 40 other railroads regarding the present freight classification of horns, with the Interstate Commerce Commission. The petition asked that the freight rate on horns be reduced from 1½ times first-class rate in less than carload lots to first-class rate, and from second-class rate on carloads to third-class rate.



To Acquaint the Motoring Public With the Puncture-Proof Qualities of the Lee Puncture-Proof Tire, the Lee Tire & Rubber Co., Publicly Demonstrated Its Product Through All Its Dealers, During the Week of June 12 to 17, in the Manner Illustrated.

This emblem stands for quality

The Sign of Success

Now—Hundreds of Dealers Display This Sign

Business men are grasping the Ruggles money-making opportunity. The roll of Ruggles dealers and distributors grows bigger month by month.

Ruggles Trucks are the World's Greatest Value. Greatest in quality, service, satisfaction. The price is the lowest of any quality truck now on the market.

If you are looking for a truck that will sell and a financially strong company that will make your franchise permanently valuable you will find it in the Ruggles,—the same as other business men have found it.

One-Ton (chassis) **$1195**

Share in this money-making enterprise. Learn why it will pay you to hang the Ruggles sign over your door. Write for details.

Two-Ton (chassis) **$1795**

The World's Greatest Truck Value

RUGGLES MOTOR TRUCK COMPANY, Saginaw, Michigan
Canadian Factory, Ruggles Motor Truck Co., Ltd., London, Ont., Canada

RUGGLES TRUCKS

Activities of the Motor Truck Association of Philadelphia

OFFICERS

THOS. K. QUIRK, President
D. H. ZIMMERMAN, Vice President
W. H. METCALF, Sec'y, 328 N. Broad Street
W. R. WALTON, Treasurer

BOARD OF GOVERNORS

W. Y. ANTHONY W. A. MANWARING H. O. STAEHLING
F. H. WILLIAMS GEORGE B. SHEARER

THE COMMERCIAL CAR JOURNAL OFFICIAL ORGAN

THAT a uniform motor vehicle law throughout the United States would greatly benefit transportation conditions was stated by Dr. J. T. W. Kastendieck, general truck sales manager of the Packard Motor Car Co., New York, in addressing the concluding meeting of the season of the Motor Truck Association of Philadelphia, at the Hotel Adelphia. Dr. Kastendieck discussed some highly important matters affecting the motor truck industry.

The meeting was presided over by the vice-president, D. H. Zimmerman. Secretary W. H. Metcalf received an ovation upon the announcement of his successful nomination for the State Legislature from Delaware County, he having been endorsed by the motor truck interests. He stated that he hoped to meet three or four other members elected from different parts of the state at the next legislature who would co-operate with him in advancing the interests of the motor truck industry in various ways.

Dr. Kastendieck stated that the war had proved the utility of the motor truck, but emphasized the point that the most grievous problem facing the progress of truck transportation was unfair or unwise legislation. He said that this interference was serious because of a lack of understanding on the part of legislators; second, on account of inadequate highway provisions, and third, on account of the economic conditions involved. To correct these conditions, he stated, would require the co-operation of the public, the truck owners, the manufacturers, dealers, trade organizations, etc., etc., but mainly of well-informed legislative bodies. He pointed out that the motor truck is purchased by the owner as a means of livelihood, a source of profit, or for the shipment of products, all of which conditions must be considered by legislators.

He claimed that the motor truck is blamed too much for abuse of the highways when it was a fact that only one-third of the 30,000 trucks in this state use those highways; whereas, hundreds of thousands of fast moving passenger cars use them continuously. Legislators, he said, either overlook or do not know that a truck of six or seven tons capacity moving slowly does not do near the damage to the road that is done by two trucks of half that capacity moving at much higher speeds. Multiplication of traffic, he contended, was worse than heavy units moving slowly with the same load.

He admitted that many trucks are overloaded but that this could be fairly regulated by law, by allowing some leeway for overload instead of penalizing for small infringements. He thought that the country owed a square deal to the motor truck for its service to the community in providing a transportation not furnished by railroads. Lower cost of truck operation he predicted, would result from regulation of the load and the speed, and said that this cure could be effected by the truckmen themselves. Referring to the used truck he said that exorbitantly high allowances had been made for them, resulting in reaction on the truck business. He maintained, however, that properly figured discounts could be allowed on old trucks in the purchase of new ones. Ruinous competitive methods, he said, would have to be eliminated. The public, he declared, was more interested today than ever in the security of their motor truck investments, which was a sound indication.

Attention was called to the annual outing to be held on Saturday, June 24, at Kugler's Mohican Club above Camden.

Metal and Rubber Markets

Freight Reduction Tends to Curb Steel Advance

The ten per cent freight reduction to become effective by July 1st has already had its effect on steel quotations. Although it will not lower the present prices of steel it will tend to stem further advances which otherwise seemed inevitable. At a time of rising prices such as it has been, any excuse is pressed into service by buyers to force lower prices. The reduction will undoubtedly have an effect upon the mills.

Another factor that may effect a rise in steel prices is the eight hour plan against the present plan if it goes into operation. Mill employes will not stand for much of a reduction.

Steel Products Prices

Per ton—Pittsburgh—	
Billets—Bessemer	35 00 a .....
Open hearth	35 00 a .....
Forging	37 00 a 39 00
Sheet bars	35 00 a .....
Slabs	35 00 a .....

Sheets

The following prices are for 100-bundle lots and over, f.o.b. mill:

Blue Annealed Sheets—	
Pittsburgh (base)	2 40 a .....
Philadelphia	2 76 a .....
New York	2 78 a .....

Finished Iron and Steel

Tank plates, Pittsburgh	1 60 a .....
Tank plates, New York	1 98 a .....
Steel bars, Pittsburgh	1 60 a .....
Steel bars, New York	1 98 a .....
Iron bars, refined, Pittsburgh	2 10 a .....

Iron and Steel at Pittsburgh

Skelp, grooved steel	1 60 a .....
Skelp, sheared steel	1 60 a .....
Strip steel, cold	3 75 a .....
Strip steel, hot	2 00 a .....
Steel, melting scrap	17 00 a 17 50

Miscellaneous

Copper rolls	18.25 a .....
Copper bottoms	27.25 a .....
Copper rods, round	18.25 a .....
Copper rods, black, net	14.25 a 14.50
Seamless tubing, bronze	22.00 a .....
Seamless tubing, copper	21.75 a .....
Seamless low brass tubing	21.00 a .....

Antimony

There has been no particular change in the antimony situation and prices continue to be quoted at around 5.37½c to 5½c per lb. for spot regulus in carload lot quantities.

Manganese

Further large business has been done in manganese ore of Brazilian and Caucasian origin.

Old Metals

Following are dealers' buying and selling prices for large quantities f. o. b. cars New York:

	Buying.	Selling.
Aluminum—		
Cast scrap	9 a 9½	9¾a10
Sheet scrap	9 a 9¼	10 a10¼
Clippings	12½a12¾	13½a14
Copper—		
Light and bottoms	7⅝a 7⅞	8½a 9
Heavy, cut and crucible	10¼a10½	11½a11¾

Rubber a Shade Stronger

Para—Up-river, fine	18 a ....
Up-river, coarse	12½ a ....
*Island, fine	17¼ a ....
Island, coarse	7¾ a ....
Caucho, ball, upper	13¾ a ....
Caucho, ball, lower	10¾ a ....
Cameta	.... a 9½
*Centrals—Corinto	.... a 10
*Esmeralda	.... a 10
*Mexican scrap	.... a 9½
*Guayule, wet	.... a 13
*Guayule, dry	.... a 26
*Balata—	
Block, Ciudad	.... a 55
Block, Colombian	.... a 42
Panama	.... a 40
Sheet	68 a 70
*Benguella, No. 2	7 a 9
*Kassal—	
Pr. black	14 a ....
Pr. red	10 a 12

* Nominal.

SCRAP RUBBER—With no incentive to buy, the market remains dull and uninteresting.

Inner tubes, No. 1	.... a 3½
Inner tubes, No. 2	.... a 2¾
Tires, automobile	¼ a ⅝

TRADE MARK

These Rolled Steel Wheels Help Trucks to Haul Economically

There are a number of factors which determine the serviceability and cost of operation of a truck. Among the most important of these factors are the wheels.

The strength, durability and light weight of Bethlehem Rolled Steel Truck Wheels help to produce a truck of longer life and more continuous service, due to fewer costly repairs. This means a truck that will operate with greater profit and that is a more attractive, better paying investment.

Bethlehem Rolled Steel Truck Wheels are made from a specially rolled steel I-beam by a very unique process, and this method of construction has made possible a wheel combining to an unusual degree the qualities necessary for economical and lasting service.

The savings incident to the method of manufacture, plus the economies of quantity production, make the Bethlehem Rolled Steel Truck Wheel available to truck builders at an attractive price.

Send for Catalogue RC. It describes fully, with numerous illustrations, the unique process by which this wheel is made from a rolled steel I-beam.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

Sales Offices: New York, Boston, Philadelphia, Baltimore, Washington, Atlanta, Pittsburgh, Cleveland, Detroit, Chicago, St. Louis, San Francisco

BETHLEHEM

ROLLED STEEL TRUCK WHEELS

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

Utah Jobbers' Campaign Produces Results

Salt Lake City jobbers started their merchandising campaign during the annual automobile show, holding a big meeting at Salt Lake City. Charles C. Backes, the retiring manager of the Intermountain Automotive Trade Association, was the speaker, and shortly after this meeting a tour was started during which 27 meetings were held covering 81 towns and cities in Utah, Idaho and Wyoming. The response was wonderful.

Writing to the merchandising director of the Automotive Equipment Association, Vern A. Culver, sales manager of the Motor Mercantile Co., one of Salt Lake's biggest jobbers, said:

"We talked to 978 garagemen and their employes and were more than surprised with the interest created. In Pocatello the garagemen issued a bulletin the day the picture was to be shown that any employe who failed to attend the meeting that night would receive his check the next morning. Due to this co-operation we had a 100 per cent crowd.

"At Caldwell, Idaho, some of the dealers attended, but found after arriving that some of their employes had failed to obey their instructions and were not there. The next night we showed at a town some few miles distant and, much to our surprise, we found all the mechanics from Caldwell at this meeting. Upon inquiry we found that their positions for the future depended on their coming to this town and seeing the picture.

"From these incidents you can see that the garagemen themselves are taking to this thing earnestly, seeing the real merits to it. The writer usually stayed in town some few hours the next morning after the show, and I can truthfully state that I never saw so much window washing and dirt flying in all my trips over the territory as I saw in these towns the morning after the show. If no other results were obtained, this is worth the effort we have spent, as there is no question that we have some of the best garagemen in the country, but the dirtiest places I have ever seen, and if we can get them to clean up without even 'Asking 'Em to Buy,' we have made one great step forward in our merchandising.

"Not only have our customers taken a great interest in this merchandising proposition, but it has practically made our salesmen into real merchandisers.

"If we did not succeed in enlisting a single garageman in this work, the effect it has on our men would more than repay us for all the trouble and expense we have gone to.

"It is most gratifying and if there is anything that either the writer or Motor Mercantile Company or any of our organization can do to further this work, please call on us, for we are for you 100 per cent."

A fleet of Pierce-Arrows will traverse the route of the Old Pony Express of 50 years ago, from Los Angeles over the Santa Fe Trail to Kansas City. The "modern schooners" are to be operated by the Overland Stage Co., 149 West Pico St., Los Angeles.

British Automotive Production Low

British automotive factories were turning out only about 10 per cent of their capacity production during the first quarter of 1922, says W. M. Park, secretary to the American Trade Commissioner, London, in a report to the Automotive Division of the Department of Commerce. This small production has been due to the fact that their export markets are greatly diminished and manufacturers have been almost totally dependent on the home demand, which regularly undergoes a seasonal falling off during the winter months and up to the middle of February or first of March, when the spring orders begin to accumulate. Many firms have been working even below this percentage and the 10 per cent average was accounted for only through the activity of some of the builders of light cars, which at present enjoy a vogue in the British home market. Builders of heavier and higher-priced vehicles were practically marking time for the arrival of spring orders.

There were distinct signs of improvement in production with the seasonal influx of orders in late February and a record trade was reported in some quarters, when the industrial dispute between the Engineering Employers' Federation and the Amalgamated Engineering Union began on March 11. Most of the manufacturers of motorcars and motorcycles are members of the federation and since the lockout they have been short of toolmakers and fitters, comprising from 20 to 25 per cent of their factory personnel. The result of the lockout was an immediate sharp curtailing of output, representing as much as 25 per cent in certain plants.

Reports from such important manufacturing centers as Birmingham, Coventry and Wolverhampton state that unfinished work is lying about the shops and in order to maintain balance in the various departments working hours have had to be reduced. Some of the factories will undoubtedly have to close down unless an early settlement is secured. Work has continued uninterrupted only in the case of non-federated concerns.

Moline Plow Company Now Unencumbered

With current assets amounting to $16,000,000, the reorganization of the Moline Plow Co., Moline, Ill., has been completed. All current indebtedness has been cleared from the company's books except accrued and current expenses and $70,000 of current accounts.

Officers of the company are as follows: Frank O. Wetmore, chairman of board; George N. Peek, president; H. S. Johnson, executive vice-president; R. W. Lea, vice-president; F. W. Edling, vice-president and sales manager; H. B. Dinneen, vice-president in charge of implement manufacturing; C. B. Rose, vice-president in charge of tractor works; L. C. Shonts, secretary; L. C. Blanding, assistant secretary; F. N. Hoenigman and John Hammerich, assistant treasurers.

Problems Underlying Highway Transport

Representatives of the American Association of State Highway Officials, the National Automobile Chamber of Commerce, and the Bureau of Public Roads met in Washington at the Federal Bureau, May 24, to discuss important matters relating to highways and highway transport. The meeting was the first of a series which, it is expected, will eventually lead to conclusions which will have an important bearing on legislation relative to these subjects. The Honorable Henry Wallace, Secretary of Agriculture, was the guest of honor.

The American Association of State Highway Officials was represented by W. D. Uhler, chief engineer, State Highway Department, Pennsylvania; George P. Cleman, State Highway Commissioner of Virginia; John N. Mackall, chief engineer and chairman, State Roads Commission, Maryland; John H. Mullen, deputy chief engineer of Minnesota, and Charles J. Bennett, highway commissioner, Connecticut. In addition to these men who, with T. H. MacDonald, of the Federal Bureau, comprised the formal committee representing the association, several members of the executive committee were present, including C. M. Babcock, commissioner of highways, Minnesota, and president of the association; Austin B. Fletcher, director of Public Works, California; Fred R. White, chief engineer, Iowa; Paul D. Sargent, chief engineer, Maine; R. J. Windrow, consulting engineer, Missouri, and W. C. Markham, secretary of the association, Kansas.

The National Automobile Chamber of Commerce was represented by Roy D. Chapin, chairman, president of the Hudson Motor Co.; Windsor T. White, chairman of the board, White Motor Co.; A. J. Brosseau, president, Mack Trucks, Inc.; George M. Graham, vice-president, Chandler Motor Car Co.; Alvan Macauley, president, Packard Motor Car Co., and Pyke Johnson, Washington representative.

The Bureau of Public Roads was represented by T. H. MacDonald, chief; John Wilson, chief engineer; A. T. Goldbeck, chief division of tests, and C. D. Curtiss.

W. K. Hatt, director of the Highway Advisory Board of the National Research Council, also participated.

The conference decided to select those subjects which are of immediate importance in the highway transport field such as broad questions of highway finance, regulation, and operation, to report back to its members and later to gather for further detailed discussions.

McCormick Resigns as Harvester Head

The resignation of Harold F. McCormick, president of the International Harvester Co., has been announced in Chicago. Declining re-election, Mr. McCormick nominated Alexander Legge, vice-president and general manager, who was unanimously elected. An executive committee of five selected from the board of directors was created and Mr. McCormick was named chairman.

Taken From Current House Organs

Business is Looking Up

All the old, reliable signs indicate a change for the better has taken place in business. The use of the motor truck is a barometer of business conditions. More truck sales indicate more hauling being done, and consequently, improved business.

With improving business conditions, the motor truck owner or operator should consider the condition of his equipment. Now is the logical time to replace old equipment and let the saving in operation and upkeep between the old and the new help pay for the new installation.

Many a truck has been running for a year and a half or two years which, under normal conditions, the owner would have discarded. These trucks should now be replaced. Here is a field for the enterprising dealer and salesman who will carefully analyze and take advantage of it.

The present day of improving business conditions offers opportunities for the alert individual or organization to create more business by applying motor truck transportation to new lines, and by developing better and cheaper methods of handling and transporting commodities. There are new and greater sales fields to be opened up by the motor truck for many lines of business. These are channels of better business which should be studied carefully in this day of improving conditions.

Business is better. Let us improve it by better and more intelligent effort. This will accelerate this upward trend and concerted action should result in improvements month by month.—*Acme Angles,* Acme Motor Truck Co., Cadillac, Mich.

Courtesy Pays

There never was a time when courtesy counted for so much in business as today. Never was there a time when thoughtfulness and consideration was so much needed. Many look upon polished manners in business relationship as affectation. True, mere politeness cannot substitute moral excellence, but yet sincerity is the highest quality of good manners. Courtesy is related to unselfishness —the virtue and asset of prosperous truck drivers. Splashing means "hole-pitted" streets. Such streets are destructive to automotives. To splash pedestrians promotes this destruction. Protect the truck and win the favor of the public. Courtesy symbolizes sympathy. Consideration commands respect. As oil is to machinery so is courtesy to the incoming and outgoing of business. It removes the friction arising from the contact of individuals and irons out many a rough place in daily affairs.

Courtesy is prompted by desires to avoid the discomfitures of others. These virtues are factors in securing good will. Courtesy costs little but means much.—*Haul-Age,* Garford Motor Truck Co., Lima, O.

Necessities First

The mounting prices of pork, mutton, wheat, corn, and oats are reflected in a New York despatch, which reported the February automobile market as showing considerable improvement over January. This change was attributed to increased orders for spring delivery from automobile dealers in agricultural sections, who are probably basing their action upon increased inquiries from prospects.

If the farmer who has neglected keeping his profit-making equipment up to standard is to buy necessary tools first, no time should be lost by the trade in anticipating his growing desire to invest in pleasure-making mediums. Every possible day spent now in the country will have the effect of impressing upon him the greater wisdom of attending first to the necessities of his business. Winter roads and weather are holding back the development of the desire for non-essentials, but the continued rise in farm product prices is going to be a factor in the spring business.—*Harvester World,* International Harvester Companies, Inc., Chicago.

"Cheer Up"; "Speed Up"

There is no denying the fact that one of the most positive factors against success in business life is inability to decide ordinary business questions at the proper time. Failure to render prompt decisions places a man on the fence and weakens him in the eyes of those with whom he comes in contact.

In my short life I have, and so have you, seen supposedly big men in business, hem and haw and flounder around like a fish out of water over the most simple business decisions. They are never sure and before giving a positive "YES" or "NO" they are turning over in their mind the thought that if they do make a wrong decision on whom they can hang their mistake.

That's a bad habit to allow yourself to get into and if you are guilty of such practice, the sooner you make up your mind to rid yourself of it the better it will be for you. Such a habit is one of the greatest dissipators of mental power, and the man who persists in indulging in this habit is doomed to failure.

Form the habit of making prompt decisions whenever the occasion demands—don't be afraid—strike out, say it; but for the love of Mike make up your mind and decide either one way or the other.

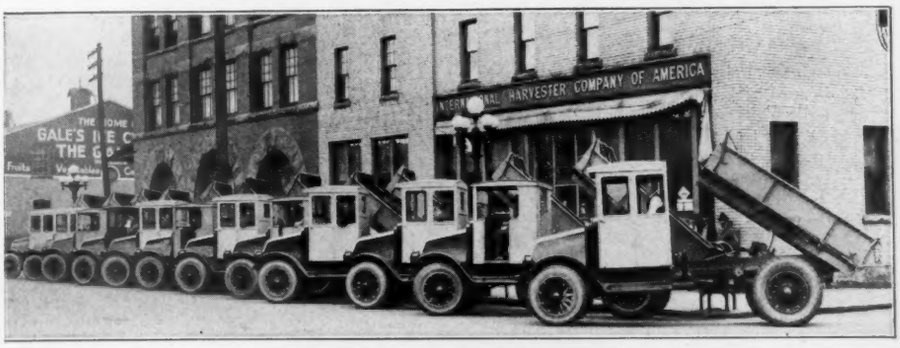
Don't go around like a stray, wandering sheep, looking for a bellwether; ever willing to follow in the wake of those who would take the lead, but instead be a positive thinking man adding to life's achievement by rendering prompt, vigorous decisions **Based on the Facts as You See Them.** Get that—"based on the facts as YOU see them."

It's not an easy task, but by persistency of purpose you can if you have the will, overcome even "Indecisionitis" by learning to depend upon yourself. To be sure, you are going to make mistakes in the beginning, but you will find as you cultivate your intellectual faculties your weakness will become strength and your reasoning capacity will increase in proportion.

It has been said that prompt decision and sublime audacity has carried many a great man over a crisis where deliberation, stalling and indecision would have proved fatal.

If you can't make decisions for yourself, Lord Harry! how do you expect others to make them for you, for who's going to know a man's wishes and abilities and goal unless it be himself. So if you can't gain attention any other way, at least do it by being "Johnny-on-the-spot" when it comes to rendering business decisions.—*Truck Transportation,*. Selden Truck Corp., Rochester, N. Y.

Earl Motors, Inc., Jackson, Mich., is using trucks to transport bodies turned out by the Auto Body Co., from Lansing to Jackson. By the use of semi-trailers from 24 to 28 bodies can be carried by employing one truck.



Fleet of International Trucks Sold by the St. Cloud Branch of the International Harvester to McCree-Moos, General Contractor at St. Paul

This entire fleet has been equipped by the Heil Northwestern Sales Company, Truck Equipment Engineers, of St. Paul with Highland closed cabs, manufactured by the Highland Body Mfg. Company, of Cincinnati, and Heil hoists and dump bodies. This is considered the best equipped fleet engaged in Minnesota road work this season.

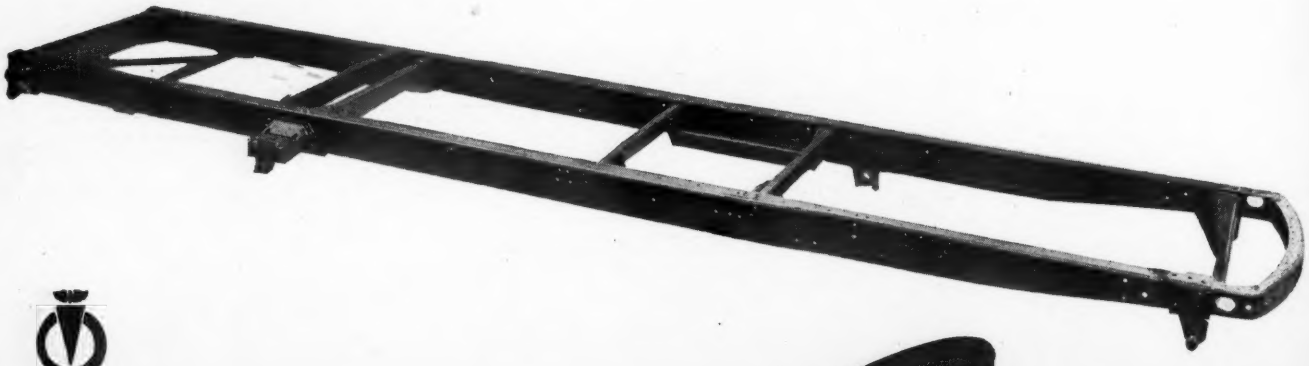
P&B

PARISH &

PRESSED STEEL FRAMES

Axle Housings
Brake Drums
Step Hangers
Torque Arms

Engine Pans
Axle Housing Covers
Running-Boards



PRESSED STEEL

Parish & Bingham Corp.

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

THE COMMERCIAL CAR JOURNAL

Entered as second-class matter at the Post Office at Philadelphia, Pa., under the act of March 3, 1879

Vol. XXIII PHILADELPHIA, JULY 15, 1922 No. 5

Published the 15th of each month by the

CHILTON COMPANY

Market and 49th Streets Philadelphia, U. S. A.

JAMES ARTMAN, President C. A. MUSSELMAN, Treas. & Gen'l Mgr.
GEO. H. BUZBY, Vice President A. H. VAUX, Secretary

ADVERTISING DEPARTMENT

C. MONROE SMITH, Eastern Manager GEORGE H. DUCK, Western Manager
GEORGE D. ROBERTS, Advertising Director Chilton Publications
HENRY L. HORNBERGER, Advertising Manager
L. E. McCONNELL, Jr., New York E. H. CROLL, New York
J. C. WEED, Detroit

EDITORIAL DEPARTMENT

JAMES ARTMAN, Editor in Chief ALBERT G. METZ, Managing Editor
MARTIN J. KOITZSCH, Associate Editor

EDITORIAL REPRESENTATIVES

C. P. SHATTUCK, Field Editor A. V. COMINGS, Western
CHESTER S. RICKER, Technical

TABLE OF CONTENTS

	PAGE
Advertisers' Index	174
Buyers' Index of Reading and Advertising Pages	170
Commercial Car Specifications	39
Editorials	19
New Commercial Cars	24
News of the Trade, Including Personals, New Agencies, Factory Items, Etc.	20
Pneumatic Truck Tire Table	52
Replacement Table	33
Service and Repair Department	54
Service Station Appliances	59
Truck Equipment and Appliances	31

SPECIAL ARTICLES

A. E. A. to Help Motor Truck Industry	9
Bus Session Feature at S. A. E. Convention	11
Principles of Motor Bus Design and Operation	13
What of the Profitable Fields of Tomorrow?	15
Why Not Repairs on the Flat-Rate Basis?	16
Looking at It From the Owner's Viewpoint	18
W. I. Ohmer Heads Associated Motors Industries	20
How They Sell Trucks to Farmers	51
Recommended Factory Practice for Disassembling, Adjusting and Reassembling Clark Axles	54
Four Ways Open for Bus Operation in Cities	58

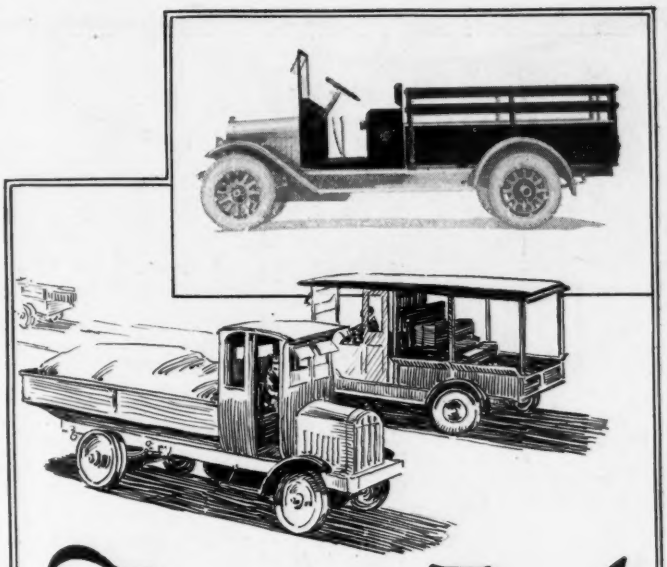
SUBSCRIPTION RATES

United States and Possessions	$2.00
Canada	3.00
Foreign	3.00
Single Copies	40c

Make Checks, Money Orders, etc., payable to Chilton Company

Change of Address—Subscribers desiring their address changed should give the old as well as the new

The COMMERCIAL CAR JOURNAL is a member of the Audit Bureau of Circulations, the Recognized Authority on Circulation Audits



Fit your Truck to its job

Wilson-Built Standardized Unit Truck Cabs and Bodies are a new development in truck-body building. They supply a wide variety of body types, all built from a few units. The bodies are handsome, sturdy, serviceable. Built to Wilson standards, they add value to every truck on which they are used.

The unit type of construction presents numerous advantages—every one a factor for increased profits for you. The units are compact—they require little room for shipment or for storage. A small stock of them enables you to supply every need promptly. Your stock is easily replenished by buying only the units most in demand. Assembly is a simple operation, easily performed by your workmen.

Learn Today How This New Line Solves Your Truck-Body Problem Write for Bulletins Nos. 1-B and 3

C. R. WILSON BODY CO.

Detroit, Michigan Bay City, Michigan

WILSON BUILT BODY
C. R. WILSON BODY CO. Detroit

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

Service Stations, and Service Dealers, know that when an owner once proves the service value of

DIXON'S 677

in his gear boxes, he becomes a customer for life.

A little higher in price, a little harder to make the first sale—but well worth the price and the effort.

Write for Trade Prices No. 112-G

Joseph Dixon Crucible Company

Jersey City, N. J. **Established 1827**

Makers of Quality Lubricants

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION